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# MERCK'S ARCHIVES

—OF—

## THE MATERIA MEDICA AND ITS USES

A MONTHLY JOURNAL FOR THE PRACTICING PHYSICIAN

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VOLUME II—1900

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## THE MATERIA MEDICA <sup>AND</sup> ITS USES

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### Therapeutic Research

HERBERT SPENCER says that "Life is adjustment, and as is the degree of life so is the degree of adjustment." We cease to live as soon as we cease to be able to adjust ourselves to the destructive forces that constantly surround us. The physician's function is to direct the internal adjustments of the body so as to overcome or pass safely dangers to life that occur in the course of disease. Disease is a battle between the living cells of the body and various destructive agencies; the want of adjustment may mean the death of the patient. On the doctor's skill and knowledge often depends the issue of life or death. It is a most agonizing sight to see people of all ages and stations in life die around us in multitudes every day, no one able to save them. If we could only assist the body to make the proper degree of adjustment all these precious lives might be saved. All so-called incurable diseases are only so because human knowledge has not advanced far enough to see how to make the proper adjustment. Every death of child or adult that occurs *from disease*, where the usual lines of treatment have been pursued, is

evidence of the woful ignorance of our age. If enough were known to be able to make the proper adjustment at the proper time such deaths could not occur. When the doctor sits helplessly by and day by day sees the life of his patient steadily losing its grip upon the various functions of the body, knowing full well that it is only a matter of a few days or a few hours when all will be over, how often does he ponder as to whom to blame for the condition of impotence in which he finds himself? The ignorant masses blame him whenever such scenes occur. The more intelligent, feeling that he has done his best, exonerate him from all blame, but seldom ask themselves whether or not blame should be attached somewhere. It is interesting to note that at least one layman has seen clearly where the trouble lies, and has been brave enough to mention it in a public address lately delivered in New York city. Prof. Henry A. Rowland, of Johns Hopkins University, Baltimore, in his address as president before the Physical Society of America, distinctly and clearly points out that but for the apathy of the whole community toward re-

search work these terribly agonizing scenes of utter helplessness on the part of the physician might be materially reduced in number or abolished, if a different policy were pursued. The knowledge we need concerning the nature of the various diseases and the true means of combating them can only be discovered in research laboratories. How many laboratories are there in America for the study of the effects of drugs in health and disease? Where are the physical and biological laboratories for the study of the fundamental laws of life? Professor Rowland answers these pertinent questions in the following words: "We see a few miserable structures here and there occupied by a few starving professors, who are nobly striving to do the best with the feeble means at their disposal. But where in the world is the institute of pure research in any department of science with an income of \$100,000,000 per year? Where can the discoverer in pure science earn more than the wages of a day laborer or cook? But \$100,000,000 per year is but the price of an army or of a navy designed to kill other people. Just think of it, that 1 per cent. of this sum seems to most people too great to save our children and descendants from misery and even death!" The public will tax themselves willingly to destroy life, but refuse to do anything toward saving life. Rich men spend fortunes to perpetuate their names in charities, in libraries, in monuments, in churches, and in colleges, but no one has thought far enough ahead to endow a therapeutic research laboratory. Legislatures vote the public funds in the line in which bequests usually go, but the people continue to suffer, because of public parsimony in the matter of medical research. While the doctor is blamed for the loss of a loved child, sister, wife, brother, or friend, the finger of science points to the accusers and the facts all cry out against each of them: "Thou art the man!"

The people do not seem to be aware that

they are neglecting their own interests in neglecting the interests of medical science; they seem to think that all possible knowledge is already in the hands of medical men, and if anything goes amiss it is the doctor's fault. If they could only be made to realize their own blameworthiness in not using their best efforts toward helping along medical research, what a blessing it would be both for them and the doctors! To-day the great bulk of therapeutic research is being conducted by private enterprise—not in publicly endowed laboratories. We wish to know what remedy or combination of remedies will give the best results in a given disease. Since the matter has never been put to the test of experiment, a query on the subject only elicits a babel of opinions. We wish to obtain the serial order of a number of remedies belonging to a common class, in order to discover the relative degrees of excellence of each in doing the work of that class. For reply we receive as many different arrangements as there are men consulted. We ask how drugs act to produce the results we know they are capable of producing, and in the majority of instances but a theory is hazarded. The jungles of Africa, Asia and America remain unexplored, except in the most superficial manner for their probably innumerable healing alkaloids, glucosides, gums and oils.

Let us have a National Therapeutic Society to strive to control extensive research laboratories, where the true value of drugs shall be determined and the proper methods of curing disease made clear. Let the members of such a society work for the realization in therapeutics of what Prof. Rowland hopes for in each department of science—a large, well-supported plant with numerous well-paid, thoroughly trained investigators. Let them develop a public sentiment that will eventually result in the liberal endowment of such institutions, and so shower untold blessings upon unborn generations.

# Therapeutic Value of Calcium Sulphide

By SAMUEL E. EARP, M.S., M.D.

Professor of Practice of Medicine and Sanitary Science, Central College of Physicians and Surgeons, and of Materia Medica and Therapeutics, Central College of Dentistry, Indianapolis, Ind.

CALCIUM SULPHIDE, so-called, known in the U. S. P. as sulphurated lime and directed to be prepared by heating a mixture of calcium sulphate (70 Gm.), charcoal (10 Gm.), and starch (2 Gm.), is a grayish-white powder, which is altered by air, and has a perceptible odor of sulphuretted hydrogen, exaggerated by moisture or the addition of sulphuric acid. It has an alkaline reaction and is slightly soluble in water, but insoluble in alcohol.

To those who especially dislike the sulphurated mineral waters the preparation may seem somewhat objectionable, although the gelatin pill offers a method of disguising it, as then only the eructations of gas from the stomach will acquaint the user with the unpleasant odor. In a few instances this may encourage nausea, but as a rule the dislike is soon overcome, as is the case with the continued use of the mineral waters or cod-liver oil.

The long-continued use of calcium sulphide may produce eruptions on the skin, and perhaps an impairment of nutrition, but untoward results are obtained from the injudicious use of many of the most potent therapeutic agents.

Clinical reports of the use of calcium sulphide are rare, doubtless because it is not given a deserved recognition; in fact, a recent work on therapeutics devotes four lines only to a description of calcium sulphide, and they include the statement that "it has no influence on the process of suppuration."

In certain conditions of the glandular system, with a tendency to suppuration, or even when such effects are not threatened, good results may be obtained by the use of calcium sulphide. Very frequently I have observed persons with indurated glands that discharged a thin, watery fluid, this condition having been unchanged for months or years. Some of these persons were af-

licted with unsightly scars, with an area of discoloration, possibly in close proximity to a group of nodules preparing the way to make the countenance still more hideous. While these cases, even in this condition, receive much benefit from calcium sulphide, I am fully convinced from my own experience that such lesions to a great extent might have been averted if treated earlier with the same remedy.

If a scrofulous diathesis existed or a tendency in that direction, then the statement is especially worthy of emphasis. If in some cases the favorable results may by some be attributed in part, if not in toto, to the other remedies used in conjunction, then this cannot be assumed when the one remedy only was used, and these were the cases in which the favorable terminations were the most pronounced. When boils and furuncles appear and reappear, their severity and frequency is diminished by the use of calcium sulphide, and in suppurative processes the pus becomes healthy and diminished in quantity, and diseases characterized by these manifestations are endowed with a healing influence.

The gist of Shoemaker's statement, which follows, is pointed indeed and would indicate that it was the result of his experience: Calcium sulphide hastens maturation; if given early it prevents formation of pus, but if suppuration has occurred, it favors evacuation and may limit its extent.

There may be in exanthematous diseases a modified eruption when the patient is under the influence of calcium sulphide, which condition may cause some difficulty in arriving at a correct diagnosis. This is evidenced by two cases of smallpox in North Vernon, Ind., several months ago, and while the influence of calcium sulphide therein is doubted by some, I think the manifestations are quite conclusive. Dr. J. N. Hurty,



secretary of the Indiana State Board of Health, gives the following description of the two cases:<sup>1</sup>

"Recently while examining two cases of smallpox at North Vernon, Ind., the following points appeared: The patients were male and female, both colored and in different houses. Both had exhibited marked prodromal symptoms, had passed through the papular and vesicular stages, and when seen, the thirteenth day of the disease, pustules were plentiful upon the face, wrists, ankles, over the lines of the extensor muscles, and other parts of the body. The queer point lay with the pustules, for they had a dried appearance, and were without a semblance of an areola. In a word, the usual smallpox pustule was not present. Nevertheless, in view of the fact that the prodromal symptoms and the papular and vesicular stages were well marked, the cases were decided to be variola. Afterwards, in talking about the cases, Dr. Green, city health officer, remarked that he had been giving to both patients calcium sulphide at the rate of 4 grn. per day."

Was the medicine the cause of the variation in the character of the pustules?

It seems to me that this citation very clearly illustrates the effect of this therapeutic agent upon pustulation. Merely to mention the diseases in which this agent may be given coincides too closely with the brief and feeble efforts of a few others, and smacks too much of hearsay; in fact, most of the literature upon the subject is of that nature. Hence, to designate some of the types of disease in which the remedial measures have given good results will be a means by which the indications will be more clearly defined.

J. C., aged 25, presented himself at the regular clinic, conducted by Dr. J. A. Sutcliffe and myself at St. Vincent's Hospital, Indianapolis, Ind. Previous history negative; large hydrocele of long standing on left side. The fluid was removed in the usual way by the trocar, and tincture of iodine injected. At two intervals within a month afterward a small quantity of fluid was removed. While the hydrocele was unilocular and the fluid did not return after the second tapping, still it presented an indurated mass one-half its original size. Absorption did not take place as

expected, and after a period of six months the question of malignancy was considered, since the hydrocele did not respond to the ordinary line of treatment. I determined to try calcium sulphide, which I gave in 1-grn. doses three times a day, and at the expiration of three months the enlargement was only slightly perceptible.

In the treatment of carbuncle with calcium sulphide I have been much gratified, knowing that such conditions may continue a month or, perhaps, from constitutional derangements, several months. Even if there be some opposition to my views, personal experience is worthy of mention. I will cite one case only:

T. E. C., aged 40; merchant; good habits, but led a sedentary life; complained of successive rigors. Temperature, 103° F.; face flushed and apparently swollen; slight difficulty in breathing, intense headache. He called my attention to what he called a pimple, located on the back of his neck near the sixth cervical vertebra. He said he did not understand why the burning and throbbing pain continued after it had opened. The surface was indurated, bluish in appearance, and encircled an orifice filled with a grayish-white material; in fact, all the indications of a carbuncle. I gave 1-grn. doses of calcium sulphide every four hours; also acetanilid to combat fever, and codeine to relieve the intense pain. On the second day I removed the necrotic tissue, and permitted the occasional use of hot fomentations, and the local use of an ointment of ichthyol and zinc oxide. As an antiseptic dressing, a 1:5000 solution of mercury bichloride was used. The patient was able to attend to his business about three weeks after commencing treatment. During the last week a pill containing quinine, iron, and strychnine was given, in conjunction with cod-liver oil.

The following points are to be noted: The short course of the disease did not permit the constitution to be affected to any great extent, and the pain, after the expiration of a few days, materially subsided. Several indurated prominences appeared in close proximity to the original, but disappeared without reaching the stage of suppuration or causing any special uneasiness.

C. S., aged 20; habits good. Upon my arrival I found him confined to his bed by traumatic orchitis, with no visible signs except the swelling. All the characteristic symptoms of an ordinary orchitis were present, the pain being intense. In addition to the usual local treatment, calcium sulphide was given in 1-grn. doses every three hours for two days, then every four hours, and at the end of a week three times a day. During

<sup>1</sup>*Med. and Surg. Monitor*, June 15, 1900.



the first two days  $\frac{1}{8}$  grn. of morphine acetate was given to allay pain. Patient recovered in two weeks.

In another patient, aged 60, with epididymitis, enlarged inguinal and cervical glands, with a probable history of latent syphilis, I am satisfied that calcium sulphide rendered valuable aid in addition to the specific treatment.

I am informed by Dr. A. J. Banker, of Columbus, Ind., that he has used this preparation in the treatment of orchitis for several years, and he deems it superior to all others.

The following citation will show the good results in the treatment of boils:

C. A., aged 9; face was distorted by boils in all stages. I gave a pill of  $\frac{1}{12}$  grn. of calcium sulphide every four hours. In one week those farthest advanced were evacuated, and the infant crop passed away without suppuration. The child was well in two weeks. The mother called my attention to the fact that the child a year before had received treatment from me under the same circumstances.

E. S., aged 7; vicious case of scarlatina; recovered after a siege of two months. On my first visit I found an extensive membranous exudate covering the tonsils and palate. The result was numerous complications from septic poisoning, but I will mention only those which will serve as illustrations. The fourth week there appeared six abscesses almost simultaneously,

located on the left shoulder, elbow, and wrist, one on each side of the neck, and one on the left knee. As soon as I could find evidence of fluctuation, I evacuated them and established drainage. I then gave calcium sulphide in  $\frac{1}{12}$ -grn. doses three times a day in connection with other treatment, which included strychnine nitrate. But one abscess appeared afterwards, which was located on the buttocks and was of little importance. I think that it is fair to presume that the ultimate recovery can justly be attributed to the use of the agent under consideration.

The above cases seem to me self-explanatory and call for but little additional comment. It was especially noticeable, however, that there was an improvement in the general health and an absence of the characteristic debility. If suppuration was not averted, the evacuation took place more quickly and convalescence was devoid of that tardiness so frequently observed.

I do not use calcium sulphide in powder or tablet form for chemical reasons, but prefer the gelatin-coated pills, and always examine them to ascertain if they are reliable.

While I have watched the use of this preparation in both hospital and private practice for a number of years, still I have selected those cases that are especially fresh in my memory and noted in my case-book.

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[Contributed to MERCK'S ARCHIVES]

## The Treatment of Acute Croupous Pneumonia

By J. M. FRENCH, M.D., Milford, Mass.

(A collective investigation report, read at a meeting of the Thurber Medical Association, Milford, Mass., December, 7, 1899)

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THE origin of this paper was a circular sent to the thirty-seven members of the Thurber Medical Association, asking them for answers to twelve questions in regard to their methods of dealing with the various conditions met with in cases of acute croupous pneumonia. The object of the paper is to present a brief summary of the thirty different answers received.

1. Do you believe it possible to abort, jugulate, or break up pneumonia in its early stages? If so, what means do you use for this purpose, and with what success?

The answers to this question have been classified as follows: Negative, 19; affirmative, 9; doubtful, 2. Of the negative an-

swers, twelve are without qualification. One does not believe it can be aborted, but thinks it possible that the course of the disease may be favorably modified, and perhaps shortened, by blood-letting in properly selected cases. Another thinks that possibly prompt and vigorous treatment may lessen some of the severe conditions. Three assign as their reason for a negative reply that pneumonia is a self-limited disease.

Of the two replies classed as doubtful, one says: "There are many cases which do not develop beyond the first stage, but I question if drug treatment is to be credited entirely for early termination."

The views of the affirmative voters are

represented by the following replies: "Occasionally it has seemed to me that the trouble was arrested in the congestive stage, before consolidation had taken place. Local applications of heat, small half-hourly doses of aconite, and a small opiate at night have been my usual means." "I believe pneumonia can be aborted in a very few cases, while the lung tissue is yet in the congestive stage. For this purpose I use morphine, phenacetin, and the bromides, with topical applications when there are pleuritic pains." "Notwithstanding contrary opinions in text-books, I must say that I believe that I have broken up pneumonia by pilocarpine, sweats, and active purgation." "Yes. Aconite or dosimetric trinity, with cathartics and counter-irritants. If taken early, it can often be done."

2. What is your practice with reference to local applications, such as blisters, mustard plasters, poultices, liniments, and the cotton jacket?

The answers show that local applications of some kind, and at some stages of the disease, are used by all. Counter-irritation in some form, in the congestive stage of the disease and in pleuritic complications, is employed by twenty-two. Of these, twelve use mustard plasters in the first stage, while the remainder depend chiefly on various stimulating and anodyne liniments and other similar applications. Three mention the use of blisters in the later stages, or in cases of delayed resolution. Sixteen use poultices more or less, usually of flaxseed; some as a routine measure, others only when they regard them as specially indicated, or when competent nurses are at hand to attend to their proper application and renewal. Two report that they never use poultices. The pneumonia jacket, made usually of cotton, but in a few cases of wool, is largely in favor, being used by twenty-six, mostly in the second and third stages, but sometimes in all stages, and in four instances to the exclusion of all other local applications.

3. What rules do you make with regard to diet?

The majority favor a light and liquid diet. Several mention that they feed liberally,

while others caution against overfeeding. A few give solid and semi-solid food in mild cases. Among special articles of diet, milk is easily the favorite, being mentioned by more than is any other article. Malted milk, milk and eggs, eggs alone, peptonized milk, meat broths, gruels, and beef juice follow in about that order. One or two mention toast, raw oysters, coffee, junket, rare beef, beef tea (only one mentions beef tea, the favorite of our fathers), egg-nog, and water.

In regard to the amount of food given and the intervals of administration, only a few give definite rules. One says he gives 1 or 2 quarts of milk in twenty-four hours. Several specify "little and often." One, more definite than the others, says: "At intervals of every three hours, milk, sometimes peptonized, is given, about 8 fl. oz. each time. The white of an egg is sometimes added to each glass of milk. If milk disagrees, or disturbs digestion, then gruel or, more reluctantly, broth is given."

4. What means do you rely upon to sustain the heart?

The almost universal favorite for this purpose is strychnine, which is mentioned by all but two. Several give this from the first, and use other remedies when indicated, or as the case advances. Three mention no other drug for this purpose. As to doses, only one specifies definitely— $\frac{1}{30}$  to  $\frac{1}{20}$  grn. every two to three hours.

The remedy next in favor is digitalis or digitalin—fifteen use digitalis, presumably the tincture, while five favor the glucoside, digitalin. One admits that he has seen no good results from its use. Some begin its use with the stage of consolidation, others when signs of a failing heart appear. Eleven use whisky, brandy, or some form of alcohol, and eight rely upon glonoin or nitroglycerin. Those who specify the conditions generally use these remedies at the crisis and in emergencies. Three use aromatic spirits of ammonia, one ammonium carbonate, two the Da Costa tablet of digitalis, strophanthus, and strychnine, and one each mentions cocaine, quinine, and chloroform. One relies upon food and strychnine.

5. What remedies do you chiefly use to reduce high temperature?

Thirteen use aconite, aconitine, or veratrum, either alone or guarded by strychnine and digitalin. Sixteen mention various coal-tar antipyretics, as phenacetin, acetanilid, and antipyrine, in the order named. Several emphasize the need of care in their use, and some guard with heart tonics. Five are opposed to the use of the coal-tar antipyretics. Ten mention quinine as one of the drugs upon which they rely. This is favored by more than any other single drug. Fourteen rely to a greater or less extent upon cold sponging, ice bags, or some form of cold applications. Of these, eleven favor cold sponging. One does not meddle with the temperature, and two do not meddle with it unless it runs high—one says to  $103.5^{\circ}$ , the other  $104.5^{\circ}$ .

6. What is your practice with reference to expectorants and cough remedies?

Expectorants as a class are not favorites with the members of the association. Five never use them; twelve do so but seldom, and then only as a matter of form, or to please the patient, but do not themselves place much dependence in them. Two use them sometimes, but have no rule. Of the whole number, only three speak favorably of their use.

Of the drugs which are mentioned as being sometimes of service in quieting cough or favoring expectoration, five use codeine, three morphine, and one Dover's powder, a total of nine for opiates. Five use ammonium hydrochlorate, and four ammonium carbonate. One sometimes uses small doses of whisky. One depends upon codeine to allay cough, and potassium bichromate to clear the mucous surfaces; and one uses emetin with codeine, which combination he claims quiets and relaxes, but does not disturb digestion. Of the agents used, the opiates come first, and the ammonium salts next.

7. Do you ever bleed in pneumonia? If so, when and with what results?

Twenty-two have never bled, but eight of these are favorable to doing so in sthenic cases. Six have bled in one or more cases, and the results generally have been favor-

able. One has bled twice with excellent results, but generally obtains the same results from cathartics.

8. What is your practice with reference to opiates?

Five use opiates but seldom, two when necessary, one very cautiously, two as little as possible, one believes in their judicious use, and two use only codeine, while the remaining seventeen use them when needed to relieve pain and cough, produce rest and sleep, and promote the comfort of the patient. Of the eighteen who specify some particular opiate, one names simply opium, one Tully's powder, four codeine, five morphine, and seven Dover's powder. The general tendency is to a sparing but judicious use of opiates; not as a routine practice, but when specially indicated.

9. When and to what extent do you use alcoholics?

Six use alcohol in some form as a routine measure in all or nearly all cases. One of these says, "I push alcohol from the first." Another, "I always use whisky every two hours from invasion to crisis, in tablespoonful doses." A third uses whisky in  $\frac{1}{2}$ -fl. oz. doses every one, two, or three hours. Twelve do not use it in all cases, nor as a routine measure, but do use it in certain stages, as at and following the crisis, or when indicated for certain symptoms, as heart-failure or a flagging pulse. Some of the answers in this class are as follows: "I rely upon alcoholics to support the heart when this organ shows signs of weakening. The dose is governed by the effect produced. I have seen remarkable results practically from their use." "To tide a patient over a critical point, use them heroically." "Only in threatened failure of the heart." "Freely, if indicated late in the disease." "In regular mild cases, none. In old drinkers, use freely. In feeble, elderly patients, kola or coca wine, small frequent doses, carefully watched. If it increases cyanosis, stop."

Eleven use alcoholics but seldom. Some of the answers in this class are these: "Use alcoholics but rarely and rely upon them less." "Never as a routine measure. Never as a stimulant. Only in a small proportion



of cases for any purpose. When used, it is usually either to relieve cough and restlessness, or in hopeless cases to favor euthanasia." "Never, if possible to satisfy the family without." "Only when ordered by consultant, and then against my own judgment. No good results." One answers by the single word, "Never." Two mention that they use alcoholics less than formerly.

10. Do you ever use the cold bath, or local applications of ice to the chest?

Fifteen answer "No"; six say "Yes"; four use the cold bath or cold sponging; five have used local applications of ice in some cases.

Following are some of the individual answers: "Yes; with good results in vigorous patients." "Have used cold sponging judiciously with good results." "No; the only way ice can influence pneumonia is by reducing the temperature. I do not believe its application to the chest will influence the disease per se." "I have used a pack of snow in a pillow-case to the affected side in one case in its incipency. The process went on just the same, nor could I see that the patient was better or worse, except that there was immediate relief from pain." "Yes; I use an ice poultice if there is much blood." "Yes; but often meet with opposition from the friends of the patient." "In sthenic cases, the ice-bag will often relieve pain, if allowed by the friends of patient." "Never do use, and do not rationally believe in such management." "No, because public opinion is, I think, against the use of ice, and I doubt if there is a patient in this locality that would submit to it."

11. What other special methods do you use?

12. What peculiarities or strong points in your treatment?

The answers to these two questions may perhaps best be considered together.

Several prefer the alkaloidal treatment. Four use oxygen by inhalation when the respiration is embarrassed. One of these, however, frankly admits that he has met with poor success in its use. A number emphasize keeping the bowels open with calomel, in small doses, and salines. One relieves dyspnea and pleurisy at the crisis by

the inhalation of chloroform. One insists on an abundant supply of fresh air, and keeps his patients flat on their backs in bed until strength is regained, especially in the aged. Another says: "Never give up until pulse and respiration stop. Don't be forever disturbing the chest to satisfy your curiosity rather than be of benefit to the patient. Keep good, cool air in the room." Another favors "a trained nurse, absolute rest for the patient, regular diet, and hypodermic medication as much as possible."

In considering this paper, it must be borne in mind that it is not a complete treatise on the treatment of pneumonia, but only a comparison of the methods used by different persons to meet certain common indications. While in the means used to meet some of the indications there is an essential agreement, in others there is considerable diversity, and even disagreement. This is, however, cause for congratulation rather than otherwise, since every physician understands that in disagreement only is there safety; and that, should the time ever come when doctors all agree, then there will be an end of all progress in medicine.

#### DISCUSSION

Dr. Geo. M. Garland, of Boston, in opening the discussion, emphasized the importance of treating the patient rather than the disease. He named as the important factors to be considered in treating cases of pneumonia (1) the stomach, (2) the heart, (3) the fever, and (4) the lungs.

In those cases characterized at the outset by a coated tongue, an overloaded alimentary canal, an inactive liver, and sluggish secretions, he would ignore the pneumonia at first, and begin by relieving the patient. He said: "First get him cleared out, before trying to medicate him. Don't worry about feeding him even, for the first day or two. A little starvation at this period will do him no harm; but when the time comes that he can eat and digest, then feed him. If he can digest good nourishing food like beefsteak, there is no reason why he should not have it."

In some cases, the first symptoms are those of shock to the heart, and these require early attention. In other cases, the

cardiac symptoms come on later. He does not bleed in pneumonia, nor believe in it. Heart strength is the keystone of the arch. All the beneficial effects of bleeding, without its injurious results, may be obtained by the use of such agents as aconite and nitroglycerin, as advocated by several of the members. Neither does he favor the use of digitalis in the early stages of pneumonia; in fact, is opposed to it, as while it strengthens the impulse of the heart, it throws a greater amount of work upon it by increasing the arterial pressure. In cases of burdened heart, nitroglycerin is better, as it dilates the capillaries, and bleeds the heart into the great reservoirs of the body. In all cases where there is a full and bounding pulse, he uses nitroglycerin, giving it in doses of  $\frac{1}{100}$  grn. every hour, or when these doses cause headache,  $\frac{1}{200}$  or  $\frac{1}{300}$  grn. at more frequent intervals. He does not give either alcoholics or strychnine in the early stages, but during and immediately following the crisis.

As to the fever, the speaker never saw a pneumonia patient die of fever, and advised, "Don't worry about the fever. Never use antipyretics in pneumonia. Use cold sponging if it adds to the comfort of the patient, otherwise not." With reference to the lungs, the two chief symptoms, he stated, are cough and pain. In croupous pneu-

monia there is not much expectoration, the exudation being mostly absorbed. He does not give expectorants as such in pneumonia. To quiet the cough, when this is troublesome, he uses tablets of morphine and tartar emetic, of each  $\frac{1}{100}$  grn. For pain, hot fomentations are sometimes useful, especially in those cases where it is necessary to keep everybody busy; but no poultices. Sometimes a bandage around the chest to restrain its movements will give relief. The pneumonia patient must have plenty of pure air, but it should be warm and not cold. Cold air is irritating and injurious. As an internal remedy for the relief of pain, he relies upon opiates, which, more than this, will tone up the heart. In fact, he knows of no better heart tonic than morphine and nitroglycerin.

In closing, Dr. Garland pleaded for simplicity in treatment; for but a few drugs, used only for definite indications, and only expectant treatment in mild cases where there is not much disturbance.

Dr. Z. B. Adams, of Framingham, very strongly advocated bleeding in the early stages of sthenic pneumonia, narrating several cases from his own experience in which this practice had unquestionably saved life. He would not advocate it as a routine measure, or indeed as a frequent practice, but in its place he believed it to be invaluable.

[Written for MERCK'S ARCHIVES]

## Ichthalbin as a Substitute for Ichthyol

By SAMUEL WOLFE, A.M., M.D.

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THE use of ichthyol as an external application, either in its pure form, or diluted with water or glycerin, and as a medicinal ingredient in ointments, has been for some years quite general. It may be said to have its value fully established as a local measure in erysipelas, eczema, pruritus, urticaria, lupus, and other affections where there are skin lesions; also in gouty and rheumatic joints, in enlarged glands, and in other local disturbances where swelling, hyperemia, or inflammations are present.

In 2 per cent. injections ichthyol has been

used satisfactorily in gonorrhea, and in even stronger solutions, for washing out sinuses and abscess cavities; as a local application to the nose and throat in both acute and chronic inflammatory disorders, and in minor gynecological practice, it has been of great service.

Internally it has been tried, in doses of from 1 to 10 grn., with encouraging results, in phthisis pulmonalis, chronic bronchitis, and chronic gastro-intestinal disorders. The chief objection seems to arise from the tendency to disagreeable eructa-

tion, and the fact that its taste and odor are repulsive to most patients.

Ever since its first introduction I have been making free use of it for local purposes. As a topical application, through the speculum, to eroded and edematous surfaces on the uterine cervix; to the nares and naso-pharynx in various ulcerated and catarrhal states; and as an inunction to glands, joints, and inflammatory eruptions, I think of it constantly and use it with much satisfaction.

From my experience with it locally, and from its chemical character, I was led to believe that the representations of European observers, who had experimented with it for internal use, might be realized. I accordingly began its use on a rather extended scale in the phthisis wards of the Philadelphia hospitals, but soon capitulated before the determined opposition of the patients to its taste and other disagreeable effects. Still believing that if it could be compounded in an available form, its virtues might be demonstrated, I was at once attracted by the announcement of ichthalbin as possibly fulfilling requirements. This albuminate of ichthyol, it was claimed, was free from all the objections mentioned as clinging to the original substance, objections which had discouraged me in attempts to investigate it, even under the favorable circumstances of thorough hospital discipline.

The first use I made of ichthalbin was to blow it into the throat of a patient with an acute follicular pharyngitis. I found that even after swallowing repeatedly it was still clinging to the pharynx, thus promising to excel, at least by virtue of prolonged application, most of the powders which are thus used, and which are immediately carried into the stomach with the first deglutition. The salutary effect of the application was sufficiently marked, and no complaint was made as to the taste or later effect on the stomach. I soon had opportunity to repeat it in similar cases, and also to make use of it in chronic follicular disease, and up to this time have continued to use it with gratifying results.

Encouraged by the use of ichthalbin, as

related above, I subsequently employed it by insufflation in diphtheria, always with at least a degree of benefit, and in many cases with such good results that from first to last it was the only topical application. In such cases from  $7\frac{1}{2}$  to 15 grn. were blown into the throat at intervals of three or four hours. While I believe a certain amount of the benefit here has been due to its local effect, its systemic action undoubtedly has also been useful. Of course, neither the internal nor local use of this drug, more than any other, need exclude the rational use of antitoxin. It is, however, only justice to ichthalbin to say that in most of the cases alluded to antitoxin was not used, but all the patients promptly recovered.

With a view to obtaining a more continuous local action on the throat, and at the same time an incidental effect on the gastric and intestinal mucous membranes, as well as by absorption on the general system, I had the H. K. Mulford Company make for me 1000 tablets, each containing 5 grn. of the ichthalbin. My instructions were to make them as hard as possible, so that they would disintegrate in the mouth somewhat slowly.

The company succeeded to such an extent that a tablet which was allowed to lie quietly in the mouth would be dissolved in about twenty minutes, it being at the same time not too hard to be ground up between the teeth; and where the object was mainly or wholly internal administration I instructed the patient to dispose of it in this way. Patients with all sorts of chronic and subacute affections of the mucous membranes, of the alimentary, respiratory, and genito-urinary tracts were treated by the administration of from four to ten or twelve of these tablets (20 to 60 grn.) daily. At the same time, where the regions were accessible to local application, either the powder for insufflation or ichthyol (1 part to 7 of glycerin, on cotton) was used once or twice a week. In the case of the nose and throat the former method, and for the vagina and cervix uteri, the latter was generally adopted.

Among the more striking cases coming



within this category I wish to mention a few:

A married woman of 40, of a highly nervous constitution, had for a long time been subject to diarrhea, alternating with periods of constipation. The alvine discharges were constantly mixed with mucus, and sometimes large masses of gelatinous substance were discharged, independent of fecal matter. Silver nitrate, bismuth subgallate, bismuth beta-naphtholate, mineral acids, and other drugs had been in turn faithfully employed with but indifferent results. Ichthalbin administered in 10-grn. doses four times a day for three weeks resulted in a cure, which has endured at least six months.

A woman of 56, with gastritis of some weeks' standing, producing recurrent rigors, much debility, anorexia, and headache, improved steadily under 10 grn. given three times daily, and was well at the end of two weeks.

A street-car conductor, troubled greatly with hoarseness of several weeks' standing, improved promptly on taking the lozenges from six to eight times a day.

Several children who presented the geographical tongue had the organ restored to normal appearance by using the remedy for a few weeks.

Women with chronic catarrhal metritis usually did well by taking the remedy in connection with appropriate local treatment, as did patients with chronic catarrhal troubles of the nose and throat.

In syphilitics, during the intervals of specific treatment, free administration of ichthalbin has a decidedly beneficial effect in improving nutrition and thus in hastening the cure. As a local application to mucous patches in the form of the powder, ichthalbin is excellent, and for chancreoids it makes a dressing, which can be placed in the hands of the patient, that I believe to be superior to the usual powders used for this purpose.

In obstinate cases of acne, in furunculosis, and in pustular skin-diseases I have found it of decided value.

The therapeutic action of this drug has been investigated and reported on by Sack, of Heidelberg; Kohlschütter, of Halle; Kahn, of Pirmaseus; Daxenberger, of Regensburg; Binder, of Suczawa; Hiller and Wolffberg, of Breslau; Zimmerman, of Stuttgart; François, of Antwerp, and others.

Sack, Zimmerman, and François have given special attention to its value in skin-diseases, and all have found it useful in acne rosacea and eczema, while Sack applied it also with benefit in seborrhea, strophulus,

urticaria, pruritus, lupus, syphilides, and other dermatoses.

Kahn, Kohlschütter, and Sack have had very encouraging results in phthisis, finding improved appetite, lessened cough, and increase in weight and strength.

Daxenberger, Binder, and Hiller have secured good results in a variety of forms of gastro-intestinal disturbances, generally of a more or less chronic nature. Ichthalbin seems to have proved itself of especial value in cases where flatulence and distention are pronounced local symptoms, and where the systemic effects of auto-intoxication were prominent.

Wolffberg made internal use of it in ophthalmological practice, and concluded that its analgesic and antiphlogistic properties are decided and powerful.

The conclusions which may be drawn from the reports of these writers are:

1. Ichthalbin is non-toxic and non-irritant to the stomach, admitting, on this account, practically unlimited dosage.

2. It is an intestinal antiseptic, a stomachic tonic, and an aid to constructive metabolism.

3. It has no odor and almost no taste, properties which make it easy of administration without combination or disguise.

Let me sum up in a few paragraphs the main points I wish to emphasize.

Wherever ichthyol is indicated for local use, but where a dry, odorless powder is more easily applicable or otherwise preferable, ichthalbin should be used.

Whenever ichthyol is indicated internally, ichthalbin should be preferred, because it will not cause eructations, will not nauseate, is more pleasant to the taste, and on account of these qualities and its innocuousness can be administered in more efficient doses.

In phthisis, secondary and tertiary syphilis, chronic rheumatism, and septic and pyemic conditions, ichthalbin may be considered among the most available drugs.

In all conditions of the mucous membranes where hyperemia, increased and perverted secretion, or suppuration appears, ichthalbin is a decidedly efficient agent.

In florid and inflammatory dermatoses it is among the best internal remedies.

# Specific Treatment for Typhoid Fever

By C. D. MILLER, M.D., Pottsville, Pa.

FIFTEEN years ago, on leaving college, I began looking for a specific for that much dreaded and ubiquitous disease, typhoid fever. Since then I have read every article in the journals, coming to my notice, bearing on the subject, and at times have enjoyed rather animated discussions, bordering on quarrels, with my colleagues and members of the profession from different parts of the United States.

After running the gauntlet with my patients by the exhibition of numerous pet treatments lauded at different times by various enthusiasts; standing many trials in the urgent effort to obtain something tangible by the adoption and variation of each new-hatched hobby as it came along; plodding through 300 cases of varying severity with only two deaths (not due to typhoid fever), I arrived five years ago at the conclusion that the German treatment, in a *modified* form, had proved to me to be a genuine specific.

I have pursued this plan of treatment for the last ten years, always with most gratifying results, and have encountered during the past fifteen years, in the treatment of typhoid fever, many typical cases coming on insidiously and ushered in suddenly—epistaxis, rose spots, diarrhea, hemorrhage, delirium, insomnia, the characteristic morning remission and evening exacerbation, many or all present in some cases—but all yielding promptly to the old German treatment, though always much modified from that method taught in the text-books and journals.

In the treatment of all my cases I have strenuously carried out all dietetic and hygienic precautions and external treatment recognized and prescribed by the profession generally; the main and only deviation being in the administration of internal remedies.

During the first few years of my practice I became partial to Professor Bartholow's mode of prescribing tincture of iodine and carbolic acid in combination. Though

never experiencing any bad or untoward effects from it, my experience led me to suspect that the doses were rather large and the intervals too great—tinct. iodine, 2 fl. dr.; carbolic acid, 1 fl. dr.; one to three drops three times a day. I therefore modified his plan of the already modified German treatment until I arrived at a most satisfactory strength and interval of dosage, which, with me, has since become so regular and unvaried as to almost deserve the odium of "routine treatment." This treatment has been pre-eminently and undeviatingly successful in every case treated by me during the past ten years.

For adults:

Tinct. Iodine.....	} of each, 10 drops
Carbolic Acid.....	
Distilled Water.....	} of each, 2 fl. oz.
Syrup.. ..	

A teaspoonful in a little cold water every two hours.

By this mode of administration the patient receives about one-third of a drop of each medicament in a palatable form, and at such intervals as to produce the most gradual and gratifying results. The fever promptly declines; the stools become less frequent and less offensive, and change in their character; perspiration is modified, restlessness subsides, delirium disappears, consciousness returns, and the patient, becoming tranquil, falls into a quiet sleep from which he awakes much refreshed. Indeed, the results in some instances have been so prompt as to deserve the term magical.

The two cases that resulted fatally were as follows:

Case I.—J. M.; male, aged 24. Admitted to Pottsville Hospital during my term. Diagnosis by previous attendant: Typhoid fever, with a history of having been ill with the disease for a week previous to admission and treated by him at the hotel where patient was boarding. Post-mortem revealed the fact that typhoid fever was absent; the real malady and cause of death being a fatty degeneration of a number of internal organs.

Case II.—S. L.; female, aged 21. Typical case of typhoid fever, which ran its course, though mild and short. During convalescence decided



and obstinate anorexia with anemia developed; patient refusing to take food and medicine, and expressing a desire for death. At the end of eight weeks of illness she died of exhaustion. This was four weeks after the temperature had become and remained normal.

I wish to add that I claim no originality or priority in the suggestion of remedies to combat this dreaded disease, my main and only point being the development of a specific plan of treatment by remedies long employed, but administered in such doses and at such intervals as to prove unsatisfactory and to be attended by failure in some cases; whereas, the *modified* plan adopted and pursued by me during the past ten years can be truthfully stated to have been employed without a failure or a single death during that period, which embraced over five hundred cases of typhoid fever.

## New Remedies of 1899

- ACETANILID-SULPHONATE OF SODIUM:—Soluble antipyretic.
- ACETOPHENONE-ORTHO-OXYQUINOLINE:— $C_6H_5NO \cdot CH_3 \cdot CO \cdot C_6H_5$ . Hypnotic and antineuralgic.
- ACET-ORTHO-AMIDO-QUINOLINE:— $C_6H_5N(NHC \cdot H_3CO)$ . Antipyretic.
- ACET-ORTHOTOLUID:— $C_6H_4(CH_3)NHC \cdot OCH_3$ . Orthotolyl-acetamide. Antipyretic. Dose: 0.1—0.3 Gm. ( $1\frac{1}{2}$ —5 grn.).
- ACET-PARATOLUID:— $C_6H_4(CH_3)NHC \cdot OCH_3$ . Paratolyl-acetamide. Antipyretic. Dose: 1—2 Gm. (15—30 grn.).
- ACETYL-ETHYL-PHENYLHYDRAZINE:— $C_{18}H_{22}N_4O_2$ . Antipyretic.
- ACID, PIPITZAOIC:— $C_{30}H_{20}O_6$ . Active purgative principle of pipitzahoac. Dose: 0.2—0.3 Gm. (3—5 grn.).
- ACOIN:—Dipara-anisyl-monophenetyl-guanidine hydrochlorate. Local anesthetic in eye practice in 0.1% solution.
- AETHOL:—Cetyl alcohol. Vehicle in cutaneous affections.
- AGHARA:—Gaskaral H. Astringent and diuretic. Dose: 30—60 Cc. (1—2 fl. oz.) of 1:20 infusion.
- AGONIADIN:— $C_{10}H_{14}O_{11}$ . Glucoside from bark of *Plumeria succuba*. Used in intermittent fever. Dose: 0.12—0.25 Gm. (2—4 grn.).
- AIROGEN:—An iodized bismuth compound intended for use as a vulnerary.
- ALEPTON, P:—Colloidal ferromanganese peptonate.
- ALEPTON, S:—Colloidal ferromanganese saccharate.
- ALKASAL:—Aluminium-potassium salicylate. Astringent and antiseptic.
- ALUMINIUM CASEINATE:—Intestinal astringent. Dose: 0.25—0.3 Gm. (4—5 grn.).
- ALUMINIUM-POTASSIUM SALICYLATE:—See Alkasal.
- AMIDO-ACETONE-ETHYL-DISULPHONE:—Amidosulfonal.
- AMIDOCINNAMIC-ACID ETHYL ESTER, META:—Properties like those of cinnamic acid; also local anesthetic.
- AMIDOCINNAMIC-ACID METHYL ESTER, META:—Like the preceding.
- AMIDOSULFONAL:—Amido-acetone-ethyl-disulphone. Sedative.
- AMYL NITRITE, CARBONATED:—See Carbonated Amyl Nitrite.
- ANISIDINE CITRATE, PARA- (Primary):—Mono-anisidine citrate. Antirheumatic and febrifuge.
- ANNIDALIN:— $C_6H_5I \cdot OI$ . Triiodophenol. (Not to be confounded with thymol iodide, also known as "annidalin.")
- ANTIMELLIN:—Glucoside isolated from the fruit of *Sisymbrium Jambolanum*. Employed in diabetes.
- ANTIPIRYNE TANNATE:— $C_{11}H_7N_2O \cdot C_{14}H_{10}O_5$ . Compound containing 37% antipyrine and used like the latter. Dose: 1.5—3 Gm. (24—45 grn.); children  $\frac{1}{2}$  to  $\frac{1}{2}$  as much.
- ARSENIC CASEINATE:—A soluble arsenic compound for internal administration.
- ASPIDIUM SPINULOSUM:—Anthelmintic. Dose: 3—4 Gm. (45—60 grn.) of extract.
- ASPIRIN:—Acetylsalicylic acid. Succedaneum for sodium salicylate.
- ASTEROL:—Soluble modification of mercury sulphocarbolate (hydrargyrol). Surgical antiseptic and bactericide.
- AYAPANA:—The herb of *Eupatorium triplinerve* (*E. ayapana*) Vall. Tonic and stomachic.
- BALATIN:—Creamy sap from a South American tree. Used as a skin varnish and vehicle in cutaneous diseases.
- BENZOYL PEROXIDE:—Bactericide and disinfectant.
- BISOL:—Soluble bismuth phosphate.
- BROMATED PHTHALIMIDE:— $C_6H_4(CO)_2NBr$ . Used in cutaneous affections.
- CALLIANDRA GRANDIFLORA:—Reputed antiperiodic.
- CALMIN:—Compound (?) of antipyrine and heroin used in asthma, etc.
- CARBONATED AMYL NITRITE:—Amyl nitrite saturated with carbonic oxide. Used like amyl nitrite by inhalation.
- CHEIRANTHIN:—Glucoside from leaves and seeds of *Cheiranthus cheiri*. Acts like digitalis group.
- CHLORALBACIDE:—Chlorine substitution product of albumin. Tonic in gastric and intestinal affections.
- CHLORALBACIDE-SODIUM:—Compound of chloralbacide and sodium. Used in gastric and intestinal affections. Dose: 1—2 Gm. (15—30 grn.) before meals.
- CHLORETONE:—Acetone-chloroform; tertiary tri-chlorobutyl alcohol. Hypnotic and anesthetic.

CINNAMYL-METACRESOL:—Hetocresol.

COLLAGOL:—Colloidal silver. Internal and external antiseptic.

CORIAMYRTHIN:— $C_{30}H_{48}O_{10}$ . Glucoside from *Coriaria myrthifolia*. Cardiac stimulant.

CREOSOTE, CHLORINATED:—Antitubercular.

CUPRI-ASEPTOL:—Copper sulphocarbolate.

CUPROL:—Copper nucleide. 6 per cent. Cu.

CYSTOGEN:—"Ammonia salt of formaldehyde."

Genito-urinary antiseptic.

DIACETPHENETID:— $C_6H_4 \begin{smallmatrix} \text{OC}_2\text{H}_5 \\ \text{N}(\text{CO}_2\text{CH}_3)_2 \end{smallmatrix}$  Derivative of phenacetin used like the latter.

DIACETYL-PARA-ETHYL-AMIDOPHENOL:—Monoethylated acetyl-para-amidophenol. Analgesic and narcotic.

DIACETYL-PARA-METHYL-AMIDOPHENOL:—Monomethylated acetyl-para-amidophenol. Analgesic and narcotic.

DIASTOL:—An extract of diastase.

DIODOPHENOL IODIDE:—See Phenol diiodide.

DIONIN:— $C_2H_5O \begin{smallmatrix} > \\ HO \end{smallmatrix} C_{17}H_{17}NOHCl + H_2O$ .

Ethyl-morphine hydrochlorate. Readily soluble and efficient succedaneum for morphine, especially in coughs and in the morphine habit. Dose: 0.015—0.06 Gm. ( $\frac{1}{4}$ —1 grn.).

DITHAN:—Trional.

DORMIOL:—Amylene-chloral. Hypnotic. Dose: 0.5—3 Gm. (8—45 grn.).

EGOLS:—Compounds of mercury with para-sulphonic acid and a phenol.

ETHYL-PHENACETIN:— $C_6H_4(OC_2H_5)N(C_2H_5)CH_2CO$ . Hypnotic.

EUGENOFORM:—Sodium salt of eugenolcarbinol. Antiseptic and bactericide. Dose: 0.5—1 Gm. (8—15 grn.).

EUMENOL:—A fluid extract prepared from the Chinese plant tang-kui, kau-kui, wön-row. Efficient emmenagogue.

FERRINOL:—Iron nucleide. 6 per cent. Fe.

FLUOROFORM:—Succedaneum for hydrofluoric acid as spray in aqueous solution in inhalation in tuberculosis.

FLUOROFORM WATER:—Aqueous solution of gaseous fluoroform. Used in tuberculosis and lupus. Dose: Teaspoonful four or five times daily.

FORMALDEHYDE-SULPHOCARBOLIC ACID:—2 ( $CH_2OH$ ). $C_6H_5.OH$ . Wound antiseptic.

GUAIACOL CAMPHORATE:—Antitubercular.

GUAIAFORM:—Disinfectant.

GUAIAMAR:— $C_6H_4 \begin{smallmatrix} \text{OC}_3\text{H}_7\text{O}_2 \\ \text{OC}_2\text{H}_5 \end{smallmatrix}$ . Guaiacol glyceryl-ester. Succedaneum for guaiacol. Dose: 0.2—1 Gm. (3—15 grn.).

HEROIN HYDROCHLORATE:—Diacetylmorphine hydrochlorate. Succedaneum for morphine.

HETOKRESOL:—Cinnamyl-meta-cresol. Antitubercular. Used like sodium cinnamate.

HETOL:—Sodium cinnamate. Antitubercular.

HOMOCRESOL:—Guaiacol-ethyl; guëthol. Succedaneum for guaiacol.

HYRGOL:—Colloidal mercury.

IODOMUTH:— $Bi_4C_7H_7I_2O_8$ . Siccative antiseptic and alterative. Dose: 0.06—0.6 Gm. (1—10 grn.).

IODOTHYMOFORM:—Iodothymol-formaldehyde. Condensation product of thymol and formaldehyde. Vulnerary and surgical antiseptic.

IDOZEN:— $C_6H_5I(COOCH_3.ONa)$ . Iodine derivative of methyl salicylate. Antiseptic, dis-cutient, alterative and absorbent.

KALAGUA:—Extract prepared from a South American plant. Antitubercular. Dose: 0.2—0.5 Gm. (3—8 grn.).

KAU-KUI:—See Eumenol

KESTIN:—Antiseptic and deodorant.

KRESOFORM:—Condensation product of formaldehyde and creosote.

LAUROTETANINE:— $C_{19}H_{23}NO_8$ . Alkaloid from the bark of *Tetranthera citrata* Nees. Tetanic.

LIPOGENIN:—Ointment base occurring in solid and liquid form; solvent for iodine for external use.

MELONEMETIN:—Bitter principle from melon root. Emetic and purgative. Dose: 0.05—0.07 Gm. ( $\frac{1}{4}$ —1½ grn.).

MELON ROOT:—Substitute for ipecac as an emetic; purgative. Dose: Of cultivated root, 25 Gm. (6 drs.); of wild root, 0.5—0.7 Gm. (8—11 grn.).

MERCUROL:—Mercury nucleide. 10 per cent Hg. Bactericide and antiseptic.

META-AMIDO-CINNAMIC ACID ETHYL-ESTER:—Local anesthetic.

META-AMIDO-CINNAMIC ACID METHYL-ESTER:—Local anesthetic.

METHENYL-ORTHO-ANISIDINE:—Compound of ortho-anisidine and ortho-formic-acid ester. Local anesthetic.

METHYL-PHENACETIN:— $C_6H_4(OC_2H_5)N(CH_3)CH_2CO$ . Hypnotic.

METHYL-URETHANE:— $C_6O.NH_2.OCH_3$ . Urethylane. Hypnotic.

MONOACETYLBRESORCIN:—Used in cutaneous diseases like resorcin.

MORPHINE CASEINATE:—Compound of morphine and caseine, readily soluble in water.

MORPHINE MONO-ETHYLETHER HYDROCHLORATE:—See Dionin.

MUTASE:—Nutritive prepared from leguminous plants.

NAPHTOFORMIN:—Condensation product of alpha- or beta-naphtol, formaldehyde, and ammonia. Antiseptic for cutaneous diseases.

NAPHTOL-EUCALYPTOL:—Compound of alpha- or beta-naphtol and eucalyptol. Surgical antiseptic.

NARGOL:—Silver nucleide. 10 per cent. Ag.

NIRVANIN:—Hydrochlorate of diethylglycocolpara-amido-ortho-oxybenzoic-acid methylester. Local anesthetic in 0.1-0.5 per cent. solution.

NUCLEIDES:—Compounds of nucleol with oxides of various metals (iron, copper, silver, mercury, etc.)

NUCLEOL:—Nuclein obtained from yeast.

OXYDOL:—Solution of hydrogen peroxide.

OXYMETHYLPHTALIMIDE:— $C_6H_4 \begin{smallmatrix} \diagup CO \\ \diagdown CO \end{smallmatrix} NCH_2OH$ .

Surgical antiseptic.

PHEBALIUM ARGENTEUM:—A West-Australian Rutaceæ credited with vesicating properties.

PHENEGOL:  $C_6H_5 \begin{smallmatrix} \diagup O \\ \diagdown NO_2 \end{smallmatrix} Hg = \begin{smallmatrix} O \\ \diagdown NO_2 \end{smallmatrix} \begin{smallmatrix} \diagup O \\ \diagdown SO_3K \end{smallmatrix} H_5C_6$ . Mer-

cury-potassium nitro-paraphenolsulphonate. Antiseptic and bactericide.

PHENOL DIIODIDE:—Diiodophenol iodide. Succedaneum for aristol.

PHENOXYCAFFEINE:— $C_8H_9(OC_6H_5)N_4O_2$ . Analgesic. Dose: 0.25 Gm. (4 grn.).

PIMPINELLIN:—Bitter principle isolated from root of *Pimpinella saxifraga*.

PIPITZAHOAC:—Mexican name for root of *Perezia adnata*. Purgative. Dose: 3—5 Gm. (45—75 grn.).

QUININE CASEINATE:—Compound of quinine and casein.

QUININE SULPHOCRESOTATE:—Internal antiseptic.

SILBEROL:—Silver paraphenolsulphonate: Hydrargyrol. Vulnerary and antiseptic.

SODIUM ACETANILID-SULPHONATE:—Soluble antipyretic.

SODIUM META-VANADATE:—Vaunted succedaneum for arsenic. Dose: 0.001—0.008 Gm.

SODIUM METHYLACETANILID-SULPHONATE:—Antipyretic.

SODIUM PERSULPHATE:— $Na_2S_2O_8$ . Surgical bactericide and vulnerary. Used in 3-to-10-% solution.

SODIUM PHENACETINSULPHONATE:—Soluble succedaneum for phenacetin. Antipyretic.

STERILINE:—Ointment-base and vehicle.

STRYCHNINE-SODIUM NITRO-SALICYLATE:—A water-soluble strychnine salt for internal use.

SULFOSOT:—Potassium creosote-sulphonate. Antitubercular. Dose: 0.3—1.3 Gm. (5—20 grn.) several times daily.

SULPHO-PARALDEHYDE:— $(C_4H_4S_2)_3$ . Tri-thialdehyde. Hypnotic.

TANG-KUI:—See Eumenol.

TANNOCASUM:—Compound of tannin and casein. Intestinal astringent.

TARTARIC-ACID DIPHENYL ESTER:— $CHOH.COOC_6H_5$ . Antirheumatic and antipodagric.

THERMOL:— $C_{14}H_{18}NO_3$ . Antipyretic and analgesic.

THYMOL CARBONATE:—Succedaneum for thymol for internal use.

TRIPHENETOLGUANIDINE HYDROCHLORATE:—Local anesthetic in eye practice.

TRITHIALDEHYDE:—See Sulpho-paraldehyde.

URETHYLANE:—See Methyl-urethane.

UROSIN:—Mixture of quinic acid and lithium citrate in tablet form. Uric-acid solvent.

VASOTHION:—Compound of vasogen and sulphur, used in chronic skin diseases.

WÖN-ROW:—See Eumenol.

ZINOL:—Mixture of zinc acetate and alumnol.

**Debt of the Public.**—In a recent address on the "Debt of the Public to the Profession," Dr. W. W. Keen<sup>1</sup> said: I would that some great artist might paint a picture of the conquerors in medicine, as Fritel has painted the conquerors in war. Instead of spectral hills and a barren waste, the scene should be laid in a smiling valley. The stately procession should be led by Edward Jenner. He should be flanked by Joseph Lister and John C. Warren, followed by Simpson, Billroth, Livingston, Ambrose Paré, Virchow, John Hunter, and many a modest but unknown hero who has yielded up his spirit in the performance of his duty. Instead of treading their way through lines of corpses, as do the great warriors of the world, they should march between lines of grateful men and women and a host of God's little children, who, on bended knee and with clasped hands, would reverently invoke Heaven's richest benediction upon their deliverers. Thus should humanity recognize its debt to the medical profession.

## Belladonna in Broncho-pneumonia

BELLADONNA, given in conjunction with small doses of calomel, is said by Dr. D. A. Hodghead,<sup>2</sup> of San Francisco, to give unusually good results in the broncho-pneumonia of children. He reports thirty cases so treated, twenty-five being his own, in which there were excellent results.

To a baby of 18 months he gave  $\frac{1}{10}$  grn. of calomel every hour until its effect on the bowels was marked, alternating with the calomel in each intervening half hour two drops of tincture of belladonna. In twelve hours there was marked improvement, although the case had resisted every other line of treatment. The belladonna was now given every two or three hours in drop doses until the belladonna eruption was well marked all over the body, when the drug was discontinued.

The author points out that calomel has been used in the broncho-pneumonia of children for many years, but that he knows

<sup>1</sup>Columbus Med. Jour., XXIII, No. 9, p. 411.

<sup>2</sup>Pediatrics, VIII, p. 214.



of no account of any one having tried belladonna, the effects of which he sums up as follows:

1. In small doses it is mildly narcotic, producing a slightly sedative influence upon the nervous system, and having a tendency to make the child less irritable, and its condition less uncomfortable.

2. It is, in small doses, a heart tonic, raising the arterial tension and increasing the circulation by stimulating the cardiac sympathetic, and in a corresponding manner depressing the pneumogastric, the inhibitory nerve.

3. It is a respiratory stimulant, influencing in some degree the diaphragm, but more especially does it affect the accessory respiratory muscles, although its action in this regard, it must be confessed, is not yet fully understood.

4. Belladonna produces a dilatation of the superficial capillaries, and in a corresponding degree, and in the same manner, relieves the congested lungs. It might also be remarked that it produces an increased secretion of urine and of bile.

5. The most important influence, however, which the drug exerts, and the one which bears directly upon the question at hand, is to diminish secretion in the bronchial tubes and pulmonary tissues. The water-logged condition of the lungs is overcome or prevented. Its effects, in such instances, seem almost mechanical, as well as marvelous. The superabundant and dangerous secretions are diminished in quantity, and the threatened asphyxia, which becomes completed when these secretions increase so abundantly that the child is unable to rid its lungs of them, is averted.

The belladonna, to be effective, requires to be pushed to the physiological limit, and as children are not very susceptible they can bear it in comparatively large amounts. Infants a few months old, the author continues, will prove no more sensitive to the same dose than children of 5 or 6 years. By frequent administration any evil effects which it might induce can be readily seen and counteracted, even when pushed to its extreme physiological limits.

The drug has not been found so effective

in the beginning of the disease, when the bronchial mucous membranes are dry and congested. It becomes especially applicable when the disease is well developed, and the bronchial secretions are superabundant.

The author closes his paper by acknowledging that thirty cases are not enough to settle thoroughly the question of the great usefulness of belladonna in broncho-pneumonia, but he holds that if it prove in a small measure as effective in the hands of others as it has in his, where the mortality has been reduced from 60 and 80 per cent. to less than 10, it will be the means of saving as many lives annually as has the antitoxin treatment in diphtheria.

### The Treatment of Pneumonia as Based on Its Pathology

LOBAR PNEUMONIA, according to Dr. A. H. Smith,<sup>1</sup> of New York, can only be rationally treated with antiseptics. He states that by grasping fully the fact that all the phenomena of the disease center in the colonies of bacteria growing in the air-cells, we have at least the basis for rational therapeutic effort. The problem is, first of all, to arrest or inhibit this growth. We shall be assisted in solving this problem by a knowledge of the peculiarities of the organism with which we have to deal. Fortunately, the pneumococcus lanceolatus has been studied by many competent observers, and its life-history and conditions of growth are thoroughly established. The facts most important are, first, that "the life of the organism is short, not exceeding ten or twelve days at the most in artificial cultures. The second is, that of all known germs this is perhaps the most sensitive to its environment, laboratory experience showing that it can be cultivated successfully only by the most careful attention to its habits and peculiarities. The slightest deviation from the conditions these impose puts an end to its growth. Furthermore, the probability of successfully inhibiting the action of a germ through the influence of an agent diffused in the blood is greatly enhanced if the germ is lo-

<sup>1</sup>*Med. News*, LXXV, p. 777.

cated in the lung. This is due to the fact that the whole mass of the blood passes through the comparatively small pulmonary circulation every time that it traverses the vastly greater systemic circuit. Hence any substance in the blood comes into much more intimate contact with a germ in the lung than it would with a germ placed elsewhere, and the assault is proportionately concentrated and energetic.

The author calls attention to the benefits derived from calomel, quinine, chloroform inhalations, and creosote in treating this disease, and attributes the good results to their power as bacteria destroyers. One of the most recent successful remedies has been creosote, whether taken by inhalation or by the stomach. As to the use of creosote by the mouth, the author tells us that the odor it imparts to the breath when taken in large doses is abundant evidence that it reaches the lungs. He quotes Dr. A. H. Kerr as saying: "I do not say that it is a specific in pneumonia, but I do say, and with emphasis, that it is the nearest approach to one that has yet been reached." He gives the details of a case seen within twenty-four hours after the chill. The pulse was 120; temperature, 104.2° F.; respiration, 40; dullness and fine crepitant râles over the base of the left lung. Ten min. of creosote were given every two hours, and for the first day a grain of opium every three hours. The following day (the third of the disease) the pulse remained at 120, temperature 104° F., respiration 36. Twenty-four hours later (fourth day) pulse 96, temperature 102° F., respiration 26. At the next visit (fifth day) pulse 80, temperature 99° F., respiration normal, patient convalescent.

The author next refers to the praise bestowed upon creosote carbonate by E. Corcier in an inaugural thesis giving his experiences in Dr. Cassoute's clinic at Marseilles. Of this he says that it can be taken in large doses, up to a dram or more, without producing gastric irritation, and that, being slowly decomposed in the small intestine, it liberates the creosote in such a way as to keep the blood constantly charged with it even when the doses are separated by intervals of six, or even twelve, hours. Owing

to this slow liberation poisonous effects are never developed with medicinal doses. The occasional smoky urine does not imply disintegration of blood corpuscles, as at one time supposed, but is the result of a harmless chemical reaction and may be disregarded. As in the case of creosote itself, the drug is largely eliminated through the lungs, and the odor of creosote is quickly developed in the breath. The action is therefore double, first, in the blood within the tissues; second, as a vapor in contact with the pulmonary mucous membrane. These facts in connection with the powerful antiseptic quality of the remedy seem to fit it especially for use in acute pulmonary troubles. In this form, too, it has the advantage of being comparatively tasteless, and therefore easy of administration.

The remarkably good results of Robert Liegel with sodium salicylate in large doses of not less than 2 drams per day were referred to. He treated seventy-five cases among miners, a large proportion of whom were alcoholics. Recovery ensued in every case, and in none did a crisis occur. The temperature declined from the end of the first day, until at the end of three or four days it reached the normal, and convalescence was established. The expectoration lost its distinctive character and became catarrhal, the physical signs did not fully develop, or if present speedily retrogressed. The microscopical examination of the sputa showed a constantly diminishing number of diplococci, until, at the end of the third or fourth day, they were found to have entirely disappeared.

In the earlier cases the medicine was suspended as soon as the temperature became normal, but this was found in a number of instances to be followed by relapse: observing this, the doses thereafter were continued for some two or three days longer, and no further relapse occurred.

Previous to the adoption of this treatment the management of the disease by the usual methods had been unsatisfactory and the mortality excessive.

Liegel believes that this treatment will save nearly all cases, and he cites some instances to show that the most unfavorable

conditions may be recovered from under its use. In one of these a man sixty-seven years of age was taken with pneumonia while living in a damp cellar in which six persons were huddled together. He had been insufficiently nourished before the attack, and when first visited was found delirious and too much prostrated to be removed to the hospital. He recovered, however, in the same time as the others, notwithstanding his miserable surroundings.

As accessory treatment, the author advises the stimulation of the emunctories to eliminate the poison, cardiac stimulants to sustain the heart, vasodilators to relieve the pulmonary circulation, oxygen inhalation to compensate for the loss of respiratory surface, cold applications to reduce excessive temperature, and various measures to relieve incidental symptoms. When there is danger to life from obstruction to respiration with cyanosis, distention of veins, and rattling respiration, he would give arterial dilators but not digitalis. In his experience blueness of lips and digitalis go together, and this he deems a forerunner of death. The author believes that the serum treatment of pneumonia, from which so much was expected, has not yet yielded any definite results.

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### Formaldehyde as a Disinfectant

DR. A. W. FAIRBANKS,<sup>1</sup> of Boston, reports a most interesting series of experiments lately made at the City Hospital at Charlottenburg, Berlin, Germany, on the disinfecting power of formaldehyde gas. Bacteria of the very highest virulence were procured and used. The apartment employed was an ordinary living room, containing 96.6 cubic meters air space. Cultures of the bacteria were freely exposed on pieces of cotton and linen cloth, on the window curtains, between mattresses, on tables, and in a pile of horse-hair from an old mattress. The doors and windows were closed and all cracks stopped. The disinfectant was placed in the middle of the apartment, with a proportion of about 1 Gm. of liquid formaldehyde for every cubic meter of

air space. The lamp was then lighted and the entrance door closed for from twenty-five to thirty hours. In the third experiment, besides infected fragments of cloth there were also exposed to the gas several pieces of diphtheritic membrane from cases in the hospital; pus that had proved virulent for a mouse and from which streptococci were obtained; anthrax spores on agar (an old tube culture), and tubercle bacilli on glycerin agar.

Upon the various articles of furniture in the room not the slightest deleterious effect could be found. It appears of particular interest and importance that the leather appeared in nowise affected. Its pliability was certainly as great as before its exposure to the formaldehyde. The objects were placed upon a chair almost directly over the disinfectant. The infected fragments were washed in a sterile 1-per-cent. solution of ammonia, thereafter in sterile water and placed in bouillon. They were kept in the incubator at 37° C.

The conditions under which the experiments were performed were much more severe than any likely to occur in practice; much more was required of the power of formaldehyde as a disinfectant than would be demanded in the disinfection of a common room. The presence of anthrax spores in the dust of such a room would never occur in practice, and that one would ever have to do with anthrax bacilli in the disinfection of rooms is extremely unlikely.

The conditions for the further growth of the bacteria that might survive the exposure were in the highest degree favorable and afforded a severe test of the power of the disinfectant. In every case where the formaldehyde was allowed free access to the infected fragments of cloth, a sterilization of the respective fragments occurred. Not only could no growth be obtained, for instance, from the pieces previously infected with anthrax, although these pieces remained in bouillon under conditions and temperature in the highest degree favorable to the growth of this bacillus, but the injection of this bouillon into mice proved also absolutely negative in results, notwithstanding the extraordinary sensitiveness of

<sup>1</sup>*Boston Med. and Surg. Jour.*, CXLI, No. 24, p. 593, and No. 25, p. 619.



mice to this organism. In this respect all of the experiments agree.

In the second order of arrangement of the infected pieces—where they were placed between two layers of cloth, where the gas had not free access—a difference in the results appears, a difference only to be explained by a variance in virulence of the bacteria.

In the first and second trial, for example, no growth in the case of any of the organisms with which these pieces were infected occurred, even when, as in the second trial, anthrax spores were used.

In the third trial, on the other hand, a negative result with these pieces was only obtained in the case of pyocyanus and staphylococcus. Anthrax, diphtheria, and typhoid showed positive growth, and the injection into a mouse of a portion of the bouillon containing the anthrax piece was followed by death in ten hours. The anthrax spores of this third trial were obtained from a culture made two days previously from the blood of a mouse that had died in twenty hours.

The bacilli from which these spores were formed had passed for several generations through mice. They were therefore undoubtedly of a high degree of virulence. The same may be said of the diphtheria and typhoid bacilli used in this experiment.

In the third arrangement, between mattresses, and in the fourth, wrapped many times in linen, there occurred in all the trials positive growth of anthrax, without exception. By the other pathogenic bacteria there occurred in the first two trials in some cases growth, in others not. In the third trial there ensued growth from all pieces that were previously placed between mattresses, without exception of any of the various classes of bacteria, but of the pieces wrapped in linen in this experiment only the anthrax and staphylococci showed growth.

The fragments infected with diphtheria taken from between layers of woolen cloth or from between mattresses gave profuse and positive growth, while those wrapped in linen remained sterile.

It was found that the dust in one corner of the room, after exposure to the formal-

dehyde, gave a profuse growth of a spore-forming bacillus, and the anthrax spores that were mixed with dust in a glass also gave a profuse growth. This shows that dust gives considerable protection to spore-producing germs.

The experiments show that the non-spore-forming kinds had no such power of resistance. As spores have been known to stand very high temperatures without destruction, this is no more than might have been expected. The author says that from the results of the experiments it may be assumed that the power of formaldehyde gas as a disinfectant—at least in the strength of 2 Gm. per cubic meter of air space—is, upon all objects to which the gas has free, unobstructed access, positive, and absolutely reliable; and this in the case, also, of organisms of a virulence and tenacity of life of exceptional degree.

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### The New Pharmacopœia

AS THE time draws near for the next decennial convention for the revision of the United States Pharmacopœia much interest is being manifested in the probable changes that may be made. The chairman of the present committee of revision has lately given expression to some of his views concerning what he thinks ought to be done, and these have been the subject of comment in many quarters. The editor of a contemporary<sup>1</sup> comments upon three of these recommendations in the following manner:

"The first is that the committee be authorized to introduce statements of doses into the Pharmacopœia, the details to be left to the committee's discretion. There can, we think, be no question that their introduction would serve a good purpose; certainly it could do no harm. For years the German Pharmacopœia has given doses, and the recent issues of the British Pharmacopœia have given them, and in consequence those books have been *pro tanto* more useful to physicians than the U. S. Pharmacopœia, and doubtless to many retail pharmacists also.

"Dr. Rice's second recommendation is

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*N. Y. Med. Jour.*, LXX, p. 928.

that the committee be authorized to introduce such of the 'newer remedies' as fulfill certain requirements. If the remedy is a definite chemical compound, such as antipyrine, aristol, chloralamide, phenacetin, salophene, sulfonal, and trional, its chemical composition should be known and controllable. Moreover, it should have passed the experimental period and be in regular and general use by the medical profession as a remedy of definite and recognized therapeutic value. Dr. Rice declares it an 'ethical riddle' that men should use certain proprietary drugs freely in their practice, write of them in journal articles and textbooks, and talk about them in their lectures and at medical meetings, and yet object to their recognition in the Pharmacopœia—and we quite agree with him.

"The final recommendation is that the committee be instructed to extend the principle of standardization to as many of the potent drugs and their preparations as may be found susceptible of such treatment, but that at present no physiological tests be made official. Dr. Rice does not, indeed, object to the physiological method of testing the strength of a drug or a pharmaceutical product; on the contrary, he regards it as highly commendable on the part of some of the large manufacturing houses that they have resorted to it, but, since at present there is a lack of uniformity in estimating physiological tests, they had better not be made official until that lack of uniformity has been done away with. 'Who,' he pertinently asks, 'shall standardize the standardizers?'

"All these recommendations of Dr. Rice's commend themselves to our approval, and we think we can add one that, if carried out, would make the book much less of an enigma than it is at present to those physicians and pharmacists who are no longer young. We mean the restoration of the dear old system of grains, drams, ounces, etc.

"It may not be quite 'up to date' from the recent graduate's point of view, but we are sure it would touch the heart of many elderly men to see it restored—not to supplant but to supplement the metric system."

## Methylene Blue in Pleural Effusions

DR. CHARLES H. LEWIS,<sup>1</sup> visiting physician to Columbus Hospital, New York, in a paper on the "Treatment of Serous Effusions," lately read before the Hospital Graduates' Club, points out the fact that in cases of effusion into the pleura, where aspiration has not been practiced, the serum may be taken up by the lymphatics promptly and energetically under eliminative, salicylic, iodide, or no special treatment. The pleural surfaces meet and are firmly and permanently glued together. The patient recovers, with thickened and adherent pleural walls. In cases of pleural effusion this is a consummation devoutly to be wished for. In order to imitate nature in her successful methods, Dr. Lewis began and pursued his experiments. Absorption if possible, if not aspiration, is the accepted modern treatment. The usual therapeutic resources, he declares, are uncertain in their action and debilitating in their effects. In studying the course of serous effusions it seemed to him that if a general deposit of fibrin on the pleural surfaces could be secured before aspirating, adhesion of the walls of the sac would follow, and a resultant obliteration of the cavity. This, as nature has taught us, is the goal to strive for, the author continues. Different astringents have been injected into the serous cavities with the view of promoting adhesions, but, so far as he is aware, these injections have been employed after removal of the fluid; consequently but a small part of the serous membrane comes in contact with the irritating solution, and but a small part is coated with the adhesive fibrin. Dr. Janeway has thrown into pleural effusions of a suspected tuberculous nature 2 to 5 drops of creosote in alcoholic solution. No harm resulted, and in some cases much improvement. Absorption took place, and no pulmonary tuberculosis followed. In reference to one case he adds: "Had it not been for the success attained, this case would have been regarded as undoubtedly tuberculous." He mentioned this method of treatment in connection with remedies for tuberculous pleurisy, and not for its effect

<sup>1</sup>*Med. Record*, LVI, p. 956.



on fibrin formation, or absorption of the fluid.

That astringent injections, in animals at least, will produce artificial exudative pleurisies, and that the character of the exudation varies directly with the strength of the irritant, is shown by the experiments of Delafield and Prudden.

In order safely to throw a feebly irritating solution into a serous effusion, so that the former may come in contact with the entire surface which the serum bathes, certain conditions must be fulfilled: First, the irritating material must form an easy and permanent solution in the vehicle employed and in the serum; second, the reaction and specific gravity of both fluids must correspond as closely as possible; third, the material injected must be antiseptic or easily rendered aseptic; fourth, the volume of the fluid in the sac must remain unchanged.

Dr. Lewis, some three years ago, performed some experiments along this line, using tincture of iodine, potassium permanganate, fuchsin, and methylene blue dissolved in decinormal salt solution containing a definite quantity of fresh human serum. He found that tincture of iodine, while irritative and aseptic, mixed uniformly only after considerable agitation, and the uniformity of the resultant mixture was but transient. The others were to a less degree open to the same objection. In order to obviate this defect if possible he next approximated a salt solution to the specific gravity of the serous exudation. This has been found to differ somewhat, according to different observers. Gee (in Allbutt's "System of Medicine") gives it as 1.018-1.024, although it may go as low as 1.006. Dickinson in the same volume finds an average gravity of 1.013. An average of a small number of serums tested by the house physician of Columbus Hospital recorded a specific gravity of 1.018. A 3.5 per cent. salt solution in distilled water registers a specific gravity of 1.020. Fuchsin in this solution is but slightly soluble, and was discarded on that account. There remained potassium permanganate and methylene blue, both of which deeply and uniformly stained the salt solution with their respective dyes.

On adding these solutions to freshly drawn human serum, however, the potassium permanganate became at once decolorized, while the blue solution, after considerably less agitation than in the case of the decinormal saline solution, imparted to the mixture a uniformly deep blue color. This, however, on standing for some hours, did not preserve its original uniform tint. As the result of these experiments, the blue aniline seemed to be the proper material to use, but the salt solution did not appear to be the ideal vehicle.

Bearing in mind the properties of methylene blue, he withdrew about  $3\frac{1}{2}$  fl. oz. of serum from a case of pleural effusion and replaced it with an equal amount of salt solution (sp. gr. 1.020) containing 12 grn. of this dye. The results were not altogether satisfactory. The pain was considerable, and hypodermic withdrawals at different points over the affected chest gave a variety of blue tints, or no blue color at all. Absorption took place in a period somewhat less than usual, but the clinical condition during this time was not such as to encourage another trial. While withdrawing the serum to make room for the salt solution, the idea occurred to the author to use the former as the solvent, and, after taking up the blue, to return it again to the cavity. By such a procedure, every essential would be fulfilled. As he had already determined, serum readily dissolves methylene blue in about 1:50. The reaction and specific gravity would obviously agree, being a part of the whole; if no infection occurred during the trip, its condition as to sterility would be as good as before—which we have seen is not always the best; and finally, the amounts borrowed would be paid in full, so that no change in volume would result. It was expected that the respiratory movements and the operation of injection would produce sufficient agitation in the chest cavity to make a uniform mixture of the two serums.

The action of living serum on methylene blue is found to be quite interesting. By introducing the latter hypodermically into the serum of a blister a uniform blue color at once appears through the translucent skin. In a few hours it assumes a greenish tinge,

and next day the wrinkling of the skin tells of a diminution in the fluid. If, on the contrary, serum from the blister is drawn into a test tube containing methylene blue, and the whole is sterile, no change of color occurs even at the expiration of three weeks. Bacterial infection soon causes a change by destroying the tint. The same fluid inside and outside the body acts differently on solutions of methylene blue. The author found that part of the blue injected into serous sacs is taken up rapidly and excreted by the urine. Much, however, remains, although the color does not indicate it. Its presence can easily be detected by adding acetic acid and heating.

The method employed for withdrawing the fluid from the pleural cavity, making the solution, and reinjecting into the cavity, is in the use of a large aspirating syringe fitted with asbestos piston and washers, and with a needle of medium caliber. A rubber tube is attached to the outflow tube of the syringe, and extends into a glass graduate of a capacity of 100 Cc. or more, which holds the methylene blue. A glass rod for mixing the blue and serum is inserted into the vessel alongside the rubber tube, and the entrance is then plugged with sterilized cotton. The whole outfit before use is easily sterilized by heat. If the sterilization is thorough, infection of the serum on the round trip from sac to vessel and return, is impossible. Ordinary care renders the needle clean. The methylene blue, being put into the graduate before sterilization, is itself sterilized.

The author has used this method in twenty cases of pleurisy with effusion, and in all with the best of results. Brief histories of each case are given in the report. In none of the cases was any pain caused by the injection, and where pain existed there was diminution. As a rule there was no rise of temperature. The average duration of the disease was 13.1 days in the twenty cases. The author, as a fair inference, states that the introduction of methylene blue into the pleural cavity, even in the dilute solution employed, will be inhibitory or fatal to the tubercle bacillus, as well as other germs. Its antiseptic prop-

erties, although weak, are well established, and forming, as it does, a perfect solution with the serum, no part of membrane or effusion escapes its influence.

Several of the cases were declared to be those of tuberculous effusion, and yet a year after treatment, in a case that was seen, there was no return of the effusion.

## Clinical Tests of the Action of Dionin

DR. PAUL HEIM,<sup>1</sup> of Dr. Hermann Schlesinger's clinic, Vienna, reports having carried out a series of tests with dionin in regard to its replacing morphine in various painful affections. The dionin was generally exhibited in powder form, in doses of 0.02 to 0.03 Gm. ( $\frac{1}{3}$  to  $\frac{1}{2}$  grn.) At times it was ordered in solution in cherry-laurel water; again, it was given in conjunction with strophanthus in cardiac affections, and combined with bismuth in gastralgia, due to ulcerative processes. Besides these, however, it was found to be equally effective when administered per rectum, either as a clysma containing 0.02 to 0.03 Gm. per 10 Cc. of water ( $\frac{1}{3}$  to  $\frac{1}{2}$  grn. to  $2\frac{1}{2}$  fl. dr.), or in suppositories each containing 0.02 Gm. ( $\frac{1}{3}$  grn.).

It was observed that in from fifteen to thirty minutes after administering the dionin, pain due to any cause, and in any part of the body, was sensibly reduced, the favorable action continuing for from two to four hours. At the same time, general feeling of well-being was observed. The cough-relieving action also lasted for from two to four hours, but very frequently, and particularly in very mild cases, the coughing was suppressed for very much longer periods. Should an attack of coughing then ensue, patients state that an increased quantity of sputum is expectorated without excessive exertion.

The hypnotic action of dionin is, in many cases, very remarkable, and has been frequently observed as an unintentionally produced by-effect, as well as an intended effect, as in insomnia due to severe pain—neuralgias, peritoneal irritations, cramps,

<sup>1</sup>*Klin.-therap. Woch.*, VI, p. 1481.

gastric ulcers, and pleuritis. In some cases sleep set in at once; in others, after a while. In the latter case it was found to be advantageous to combine 1 to 2 Gm. (15 to 30 grn.) of sodium bromide with 0.02 to 0.03 Gm. ( $\frac{1}{4}$  to  $\frac{1}{2}$  grn.) dionin. This dose rarely left the head troubled in the morning, nor was nausea ever observed; many cases of obstinate insomnia, which had resisted all other medication, such as trional, sulfonal, or chloral, yielded to the combined dionin and sodium bromide, which afforded relief and sleep. In cases where insomnia is due to neuralgic pains, the author advises the addition also of pyramidon or phenacetin to the mixture. Dionin is not to be recommended in these doses, however, in cases of pulmonary congestive catarrh, as the author has observed unpleasant sensations and anxiety; but with small doses the desired relief is obtained.

The remedy was employed with a view to its analgesic action in 6 cases of cholelithiasis, in 2 cases of gastric ulcer, in 5 of neuralgia, in 1 of appendicitis, in 3 of (seemingly nervous) gastralgia, in 2 of gastric carcinoma, in 3 of pleuritis, in 1 of tonsillar lymphosarcoma; as a cough sedative in 10 cases of bronchitis and in 8 of pulmonary phthisis; as a hypnotic in 3 cases of neuralgia, in 2 of peritoneal irritation (in appendicitis), in 2 of cramps (nephrolithiasis, cholelithiasis), in 2 of gastric ulcer, and in 2 cases of pleuritis. These cases serve to show the extent and variety of application for which dionin is suitable. In the majority of cases the effects obtained were brilliant. In one case of irritation and pain due to adhesions following perforation of the appendix, the analgesic action was so prompt that the patient did not dare to venture out without being provided with the remedy. Before the treatment with dionin the patient could be relieved only by morphine.

In a case of nephrolithiasis, and in one of gastralgia of probably nervous origin, the remedy was entirely ineffective. It is, however, far more effective than codeine, while not so reliable as morphine.

In laryngitis, tracheitis, and simple bronchitis, according to the author's investiga-

tions, non-success is only rarely to be apprehended; on the other hand, in pulmonary congestive catarrh, the results are doubtful, the more so since, on account of the condition of the heart, only small doses may be given, and even then with the greatest caution.

The author's conclusions regarding dionin are summed up as follows: Dionin is a decidedly serviceable preparation, which, so far as its action is concerned, occupies a place about midway between morphine and codeine, and deserves an extended application as an anodyne, hypnotic, and sedative. The formation of a habit appears to be exceptional. Unpleasant by-effects are absent in all cases but affections of the heart-muscle. Its action appears to be equally prompt, whether given per rectum or os.

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**Restlessness** of old age is believed by Dr. C. Dukes,<sup>1</sup> of Rugby Hospital, England, to be due to the gradual failing of the scavenger organs of the body. They fail to rid the blood of effete matter, and this occasions increased arterial tension, the cause of the restlessness. To administer carminatives, sedatives, or digitalis merely aggravates the condition. Many cases are helped by mercurials, but the author has seen a grain or two of blue pill produce a cold, clammy sweat and considerable depression in the aged, and 3 grn. of gray powder once entailed salivation in a very old lady. The remedies which the author has found to relieve patients are nitroglycerin,  $\frac{1}{10}$  grn., and better still, because required less often,  $\frac{1}{2}$  to 1 grn. of erythrol tetranitrate—remedies which relieve the arterial tension. He has now under his care an old lady of eighty-five who had to sit in a chair most of the night, unable to lie still or sleep, while she and her friends longed for her departure. She is now able to lie down in comfortable sleep nearly all night, under the influence of erythrol. He has another old lady of nearly eighty, whose old complaint of restlessness during the day is so completely relieved by nitroglycerin that she is now enabled to pass her days in peace.

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<sup>1</sup>*British Med. Jour.*, No. 2037, p. 1542.



# PROGRESS IN MATERIA MEDICA

**Chemical Stimulants** are declared by Dr. Kahlenberg,<sup>1</sup> of the University of Wisconsin, to be a most inviting study for the physiologists. He says that it is a well-recognized fact in animal physiology that the phenomena of stimulation and of poisoning are very intimately related, and the applicability of the same principle in plant toxicology has been constantly forced upon us. The same thing has been observed to apply to certain fungi by Raulin, Pfeffer, and Richards for manganese, zinc, iron, cobalt and so on; and a statement of Risse in Sach's "Experimental Plant-Physiology" indicates that zinc sometimes exerts a similar influence on phanerogams. Frank and Krueger find that by proper application of copper a potato plant can be stimulated to the production of sturdier leaves and more chlorophyll, and to more active transpiration and assimilation, and longer life. In our own experiments, states the author, we have seen copper and cobalt certainly, and boron, lead, and tungsten probably, exert a stimulating influence in individual instances. And we have found that, except when the control plants were selected as especially thrifty, those that grew in the presence of gold and platinum, which can have entered into solution only in the most infinitesimal amounts, were uniformly of more vigorous growth.

**Formaldehyde** has been recommended, especially by military surgeons, as a remedy for *hyperidrosis pedis*. When applied to the skin of the feet in a greater or less degree of concentration, by its desiccating action on the superficial epithelial layers it seems to be capable of either effecting a permanent cure, or, at least, of alleviating the symptoms for a considerable length of time after each application, thus constituting a valuable method of treatment. Hirschfeld<sup>2</sup> was induced to try the formaldehyde treatment in excessive sweating of the feet. Equal parts of the full strength formaldehyde solution of commerce and absolute alcohol were applied to the hyper-secreting areas on alternate days, only half of the skin surface being treated at each sitting to avoid all possibility of producing toxic symptoms. It is also advisable, he states, in order to diminish the irritating effect of the drug on the nasal and respiratory mucous membranes,

to make the applications as rapidly as possible and to cover the parts as fast as the painting is done. The author recommends the application of a pledget of cotton, moistened with spirits of turpentine, to the nostrils of the patient. The itching produced by this solution is only of short duration and readily supportable; care must, however, be taken to avoid bringing the solution in contact with abraded surfaces, the skin covering varicose veins, and the mucous membrane of the anus or genitals. The method gave the author excellent results in the thirty cases in which it was tried, a single application sufficing in most instances to check completely the secretion for a period of from one to two weeks, with no contraindications to its continued use.

**Antivenene Serum** (Calmette's) has been used for some time by Dr. I. Dyer,<sup>1</sup> of New Orleans, in the treatment of *leprosy*, with most promising results. Surgeon R. S. Woodson,<sup>2</sup> of the U. S. Army, having found a case in Eagle Pass, Tex., concluded to try Dr. Dyer's method, and now reports his results. The case was diagnosed independently by himself, by Professor Smith, of Galveston, and by Dr. Dyer, of New Orleans, not only from the general symptoms but from the actual identification of the leprosy bacilli. The serum he used—fifty-six bottles, of 10 Cc. each—was obtained from the Pasteur Institute. The dose varied from 33 Cc. at first to 20 Cc. at the close of the treatment. It was administered subcutaneously by means of a Pravaz syringe, usually in the intrascapular region, the loose tissue below the margin of the ribs, and in selected regions. In addition to the serum the patient was kept on large doses of hoang nau, and hygienic conditions were maintained. During the first week little reaction was observed. Each injection was followed by a slight elevation of temperature, and the patient complained of headache and malaise. At about the end of the week she thought the anesthesia of her extremities was disappearing. Local injections made in selected tubercles caused them to disappear rapidly. In about nine days the dose was diminished and in two more days stopped. In another day ascending doses were tried again, but owing to the untoward symptoms had to be stopped. Temperature and pulse always became normal when treatment ceased. In less than three weeks

<sup>1</sup>Pharm. Review, XVII, p. 558.

<sup>2</sup>La Sem. méd., XIX, No. 46.

<sup>1</sup>MERCK'S ARCHIVES, I, No. 9, p. 396.

<sup>2</sup>Phil. Med. Jour., IV, No. 26, p. 1231.

great improvement was observed. An injection of 2 Cc. in the face rendered it edematous beyond recognition; but these symptoms finally subsided, the appearance of the face being much improved. During the last three weeks patient steadily improved. Now, from a bluish color, her face has assumed a healthy red, the telangiectasis has diminished, eyes are clear and bright, there are no sores on any portion of her body, and but one obstinate tubercle remaining; her anesthesia has disappeared, skin has become softer and fairer, chest and neck have filled out with healthy tissue, all lesions have disappeared, voice has become natural, fingers have lost their stiffness, she has gained 14 lbs. in weight, and her general health is excellent.

**Male Fern** when administered as a vermifuge in the doses frequently given is stated to be rather unsafe. [Prof. Gerhaod<sup>1</sup> prescribes it as follows: *Intenia solium*, 10-12 Gm. (154-185 grn.); in *tenia medio-canellata*, 14-16 Gm. (216-247 grn.)] by Dr. Grawitz,<sup>2</sup> in a late communication to the *Deutsche medizinical Zeitung*. Extreme cases may even end in death, and in many instances the blood is so altered as to destroy the red-blood cells, thicken the bile, and produce icterus. In people whose kidneys or liver are not fully normal, owing to old inflammatory conditions, the doctor believes it may increase the trouble. He does not think that adults should ever take doses larger than 10 Gm. (150 grn.), and children of six years and over should not have more than half this amount. In using male fern he does not deem it wise to use laxatives, oils, or oily vehicles, particularly castor oil, with it, as the poisonous acid of the extract is absorbed by oily substances. Every weakness of the liver, the kidney, or other organ increases the danger of local or general poisonous effect.

The author is opposed to the use of male fern for diagnostic purposes. He advises the physician before undertaking to expel a worm to guard against everything which tends to weaken the patient. The *tenia* produce nervous and intestinal disturbances, and on account of diminished assimilation cause emaciation and anemia. Even robust people, after a long siege, suffer in this manner. The author believes that in many cases treated with this remedy the weakening influence on the nervous system of the preliminary fast influences the occurrence of cerebral poisoning. He has on this ac-

count omitted fasting and purging from his treatment for years. The day before expulsion he has his patients take their regular meals, but on the morning after expulsion he sometimes gives Carlsbad or Epsom salts upon an empty stomach, and after movement of the bowels the male fern is given with coffee.

**Selaginella Apus**, popularly known as SNAKE MOSS, is declared by Dr. Kent<sup>1</sup> to be a perfect *antidote for the poison of snakes and spiders*. With  $\frac{1}{2}$  dr. of the moss is macerated thoroughly 1 fl. oz. of sweet milk. The moss is then taken out of the milk and bound on the wound, while the milk itself, containing small fragments of the moss, is swallowed by the patient. A number of cases have been successfully treated in this way by the author. One case cited is that of a boy of eleven years, who was bitten on the instep of his right foot by a large copper-head moccasin. In an hour the foot was swollen to double its normal size, the pain being intense. The next morning, after treatment with the moss, he was at play, with only a scratch to remind him of his encounter with the snake.

**Cocaine Hydrochlorate** solutions have been injected by Bier and Seldowitsch<sup>2</sup> into the spinal canal in order to anesthetize large areas of the body. Bier introduces a firm hypodermic needle, between the lumbar vertebrae, into the spinal canal, and then with a Pravaz syringe injects a sufficient quantity of cocaine solution, taking care to allow the least possible amount of cerebrospinal fluid to escape. He leaves the needle in place for two minutes, then withdraws it and seals the opening with collodion. His object in leaving the needle two minutes before withdrawing it is to prevent the cocaine passing out of the spinal canal through the inner needle hole into the tissues. The skin over the point of puncture may be anesthetized by Schleich's method. He is of the opinion that the cocaine introduced into the spinal canal is diffused in the cerebrospinal fluid, and that the anesthesia is due to influence of the cocaine upon the nerves, and perhaps also upon the ganglia.

The first patient experimented upon was a laborer thirty-five years of age. He was hopelessly tubercular and had been frequently operated upon. He suffered from active disease in the ankle joint. He had frequently taken ether and dreamed to take it again. Bier proposed to him the use of cocaine injected into the spinal canal, and he assented to the proposition. His fever

<sup>1</sup>*Therap. Monatsh.*, June, 1888.

<sup>2</sup>*Med. Record*, LVI, p. 860.

<sup>1</sup>*Med. News*, LXXV, p. 800.

<sup>2</sup>*Montreal Med. Jour.*, XXVIII, p. 951.



was high and he suffered a good deal from the ankle.

Three Cc. (50 min.) of a 0.5 per cent. cocaine solution was injected between the lumbar vertebrae into the spinal canal (in all about  $\frac{1}{4}$  grn.). Bier waited twenty minutes, and it was then found that feeling was lost in the lower half of the body; a prick or a cut was only felt as pressure. The astragalus was removed, the lower end of the tibia sawed off, and the synovial membrane dissected out. The patient moaned somewhat during the operation, but afterwards declared that he had felt no pain, but only that someone had squeezed his sore foot. The pulse increased in frequency during the operation, but nothing else was noticed. Two hours after the operation the patient complained of a pain in the loins and leg. Later he vomited and suffered from a severe headache. The vomiting soon ceased, but the headache continued during the next day.

Five other cases are cited, only one of which had severe headaches following its use. In all the operations were successfully performed without pain and in most of them without any ill after-effects. These cases show that injections of a very small quantity of cocaine into the spinal canal produce insensibility to pain over a large area of the body so complete that major operations can be performed without the use of any other anesthetic.

Unpleasant symptoms, however, sometimes follow, but similar symptoms likewise follow the use of ether or chloroform. Dr. Bier and his friend, Dr. Hildebrand, tried the treatment on themselves. Each received about  $\frac{1}{8}$  grn. of cocaine through a lumbar puncture at 7.38 P. M. Later in the evening they dined together, drank wine, and smoked several cigars. Bier went to bed at 11 P. M., slept well through the night, awoke fresh and well, and took an hour's walk. At the end of the walk he felt a little headache, which remained during the whole day, rendering his usual occupation more than usually laborious. About 3 P. M. his face became pale; his pulse was about 70. Later he felt a severe pressure on his head, and if he rose quickly he was dizzy. He became so weak that he had to lie down. There he was obliged to remain for nine days. His appetite and sleep were undisturbed.

Hildebrand also went to bed at 11 P. M., feeling well, but could not sleep and was restless. At midnight he suffered from a severe headache. At 1 A. M. he vomited. He felt unwell for three or four days and a little weak for four weeks afterwards.

Seldowitsch used cocaine introduced into the spinal canal between the third and fourth lumbar vertebrae in four cases: Pirogoff's amputation of the foot for cancer; excision of the os calcis for melanosarcoma; epithelioma of the skin near the knee joint, excision, skin grafting, and removal of enlarged glands in the groin; and resection of a tuberculous knee joint.

In all cases the operation was painless, but there followed some unpleasant symptoms. These were elevation of temperature, headache, dizziness, vomiting, dryness of the mouth, and, in one case, dilatation of the pupil, and in another, chill. It is considered to be very necessary not to allow any cerebrospinal fluid to escape.

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**Orexine Tannate** should not be given to individuals affected with hyperacidity or gastric ulcers, tumors, or cancer, according to J. Bernheim,<sup>1</sup> because the remedy does not act as a stimulant to the gastric glands, but on the muscular tissues, and the gastric peristalsis should not be increased in these affections.

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**Methylene Blue** is one of the agents assigned to oblivion by Eulenburg in his masterly essay on sciatica and its therapy, but no doubt many practitioners disagree with him in this condemnation. Klemperer<sup>2</sup> enters a good-natured but vigorous protest against such summary disposition of a remedy that has done him good service. Ehrlich's discovery of the fact that methylene blue when introduced into the living body has the property of entering into direct combination with the nerve elements has been of the greatest importance in cytology and neurology, and though this remarkable selective action does not necessarily indicate therapeutic efficacy, still the experiences of the past have shown that there is much to be hoped from further experimentation. The author presents notes on twenty-seven cases of typical sciatica in which methylene blue was employed. In eight of these no effect was produced; in six cases it gave most remarkable results, the disease being definitely cured in from ten to fifteen days. In spite of the medication thirteen cases lasted for from seven to ten weeks, but the intensity of the trouble was greatly diminished, the pain lessened, and the patients were enabled to spend at least a part of each night in comfortable sleep. From three to six capsules, each containing 15 grn. of the drug, were administered daily. In a few instances slight gastric disturb-

<sup>1</sup>*Month. Encyclop. Pract. Med.*, XIII, p. 432.

<sup>2</sup>*Die Therap. d. Gegenw.*, I, No. 11.

ances were caused, which did not interfere with the prosecution of the treatment. More serious was the painful urination the drug sometimes caused, but this was promptly relieved by an equal amount of powdered nutmeg given with each dose. In the author's estimation the results to be achieved by the use of this agent, though far from infallible, are still sufficiently encouraging to warrant its trial in every case that resists the ordinary methods of treatment, and the gratification attendant on a single case in which it manifests its occasional but remarkably curative effect will more than compensate for numerous failures.

**Amyl Nitrite** is a substance that in its action may be said to occupy the middle ground between nitroglycerin and the nitrites. On introduction into the animal economy it is rapidly decomposed into alcohol on the one hand, and a mixture of nitrates and nitrites on the other. Pouchet,<sup>1</sup> after a historical review of the discovery of the drug and its first applications in medicine, and a résumé of its action as it is usually given, describes its pharmacology in detail as follows:

**Circulatory System.**—The inhalation of moderate amounts causes acceleration of the heart-beat and a considerable drop in blood-pressure, accompanied by a great dilatation of the capillaries. After larger doses, however, this stimulation gives way to profound depression, the heart being arrested in diastole, as was demonstrated on the frog. This takes place both after previous section of the vagus and the administration of atropine, and is to be ascribed to the direct action of the substance on the myocardium. The preliminary acceleration is only observed when the beat before inhalation was normal; no effect is produced on a heart which is already overacting as a result of section of the pneumogastric. If the filaments coming from the lower cervical and first thoracic ganglia be cut, the heart can still be stimulated by the inhalation of amyl nitrite, which must, therefore, exert a peripheral effect on the intracardial nervous system.

**Blood Pressure.**—Vasodilation is the most prompt and most evident effect of the administration of amyl nitrite, and is manifested by the intense blush, which speedily spreads over the face and neck. At the same time there is a dilation of the temporal arteries and of the pupils; experiments on trephined rabbits showed that there was also congestion of the vessels of the pia.

Other writers have demonstrated that

this vasodilation is primarily peripheral, the center in the medulla being affected only secondarily to the vasomotor elements in the walls of the vessels. In man vasodilation promptly follows the first inhalation, commencing in the face and extending into the neck, but rarely reaching the trunk.

**Respiration.**—Small doses increase both the depth and frequency of respiration; the inhalation of large amounts causes it to become irregular, slow, and superficial, and is accompanied by irritation of the laryngeal mucous membrane and violent paroxysms of coughing. If death be brought on it is due to the paralysis of the respiratory center, as a result of the diminished respiratory capacity of the blood attendant on the transformation of the oxyhemoglobin into methemoglobin. On this account the author considers the use of the drug inadvisable in chloroform syncope, as in this condition it is difficult to control the amount inhaled by the patient.

**Nervous System.**—This is greatly depressed, as is manifested by the diminution of voluntary movements and lessened reflexes. In man the nervous symptoms consist of vertigo, circulatory derangements, persistent headache, and in some cases muscular twitchings and convulsions referable to the asphyxia.

**Temperature.**—At first the temperature at the periphery rises in consequence of the vasodilation, but this elevation is succeeded by a drop of from one to three degrees in the central temperature.

In conclusion, the author states that at first it is imprudent to permit the inhalation of more than 5 or 6 drops of amyl nitrite, but later on this amount may be increased to 10 to 20, or even 50, drops.

**Apocynum Cannabinum** has given Dr. W. C. Hatch,<sup>1</sup> of New Sharon, such good results in chronic *hepatic disorders*, in *dropsy* from various causes, and as a *laxative* that he says he would regard his office stock of medicines incomplete without a supply.

The author states that apocynum cannabinum in proper doses is a heart tonic of no mean value, regulating and strengthening the action of that organ. It tones up the blood-vessels, thereby arresting the exudative process on which dropsical effusion depends; stimulates the kidneys to action and favorably influences absorption, thus relieving dropsical effusions. Small doses favorably influence the hepatic functions and exert a favorable influence over the digestive organs and functions. Its influence on the

<sup>1</sup> *Jour. des. Pract.*, 1899, No. 43.

<sup>1</sup> *Mass. Med. Jour.*, XIX, p. 534.



entire alimentary canal is marked, and in small doses, frequently repeated, is a valuable laxative in certain conditions.

Under its use, the author states, he has seen a weak, irregular heart-action succeeded by a strong rhythmic pulsation, and dropsical effusions vanish quickly. He prescribes it in scarlatina anasarca, and anasarca associated with albuminuria, having obtained gratifying results. In the latter class of cases he deems it advisable to alternate it with fluid extract of convallaria majalis, in 1- or 2-drop doses.

**Ichthyol** has been employed successfully in *corneal ulcers* by Dr. B. F. Travis,<sup>1</sup> oculist and aurist to the Erlanger Hospital, Chattanooga, Tenn. The remedy was used in strength varying from 10 to 50 per cent. Generally, however, a 30-per-cent. solution in glycerin and water is used, weaker solutions being employed for home use. Ichthyol, he says, has no bad effect on healthy epithelium, even in the stronger solutions. It is very painful for about one minute, but the instillation of a 1-per-cent. holocaine solution a few minutes before the application of the ichthyol is made renders it much more comfortable to the patients. The author does not wish to say that this is all there is to be done in corneal ulcers, but among the great number of local remedies which are in use, ichthyol has afforded him the best results.

**Eugallol** has been tested in a series of cases of inveterate *psoriasis* by Dr. Hugo Goldschmidt,<sup>2</sup> of the Dermatological Section of the Allerheiligen-Hospital of Berlin. The results obtained have left no doubt in the author's mind as to the efficacy of the remedy in this disease. The eugallol was used dissolved in acetone (2 parts of eugallol and 1 part of acetone), the solution being painted daily for several days on the affected spots, followed in from fifteen to thirty minutes by the application of a zinc paste, it having been found that zinc oxide, in the form of powder or paste, strongly reinforces the reducing power of the eugallol. This form of application afforded excellent results. After but few applications, the blackened, inveterate plaques could be very readily removed, leaving brownish-red smooth surfaces no longer infiltrated, whereas all remedies hitherto employed afforded practically no results at all. At times new efflorescences occurred after a few weeks on some of the healed spots, but these, too, were readily remedied in a

few days. The treatment is not suitable, however, when the eruptions are very numerous, because then the applications are very tedious and require too much time.

Psoriatic patches on the head and face were also treated a number of times, with entire success. Cutting the hair facilitated the treatment of the scalp, but was not essential. The only drawback so far as the face treatment is concerned, is the blackening of the spots, but as this lasts but for a few days, it was not objected to by patients generally. The discoloration could be removed, too, to a certain extent, by means of ether. Linen, however, is as badly stained as by pyrogallol. The author's conclusions based on the results obtained by him, are formulated as follows:

1. Eugallol, used in the manner above described, exerts an extremely rapid and energetic action on psoriatic efflorescences in every stage.

2. In extended psoriatic eruptions, with numerous recent efflorescences, the remedy is not eligible, at least for use by the patient, because of the tediousness and difficulty of application. Individual efflorescences of the face and head may, nevertheless, be advantageously treated.

3. The eugallol-zinc treatment is excellently adapted for isolated inveterate plaques that are resistant to all other treatment.

4. Toxic effects are never observed, even after the most extended use; or, at least, are but very unimportant.

5. Eugallol causes, in some cases, slight local irritation, which, however, rapidly disappears on suspension.

Of course the remedy, like all others, can not prevent a recurrence of the psoriasis, hence an absolute cure can not be expected.

In addition to above, eugallol-zinc was also employed by the author in several cases of trichophytosis, and in chronic, scaly eczema of the back of the hand, accompanied by decided thickening of the skin. Good results were obtained in all cases.

**Jequirity** in the treatment of *trachoma* is said by Dr. R. H. T. Mann,<sup>1</sup> of Texarkana, Ark., to be the best remedy known. He states further that there are many cases which yield to this treatment when all other methods fail. Jequirity is especially adapted to cases of long standing, when much pannus exists. In order to use it, ten beans are finely pulverized and placed in a bottle containing  $\frac{1}{2}$  fl. oz. of water. This solution is allowed to stand for twenty-four hours. A few drops are instilled into each eye once

<sup>1</sup>Med. Herald, 1899, No. 11, p. 515.

<sup>2</sup>Dermatolog. Centralbl., III, No. 1.

<sup>1</sup>Med. Record, LVI, p. 964.



a day until a false membrane appears, which will be in most cases after the third instillation. Within two hours after each instillation pain sets in, and remains severe for six hours.

This treatment is followed by the daily application of a 2-per-cent. solution of silver nitrate, which is kept up until the eyes are well—this will usually be in from two to six months. The author has used this method successfully in his practice in many cases, has seen it used in many more, and has yet to see a case in which it has had any bad results; however, it might be advisable to use it in one eye at a time. The solution should be freshly prepared for each case.

The author gives the histories of two cases in which this treatment was successfully used to illustrate his claim.

**Stypticin** is reported, by Prof. L. M. Bossi,<sup>1</sup> to be less toxic than fluid extract of hydrastis. Given to pregnant women, stypticin exerted a sedative non-ecbolic action. The author declares that it may advantageously be given in alternation with other non-ecbolic remedies in cases of threatened abortion due to metrorrhagia, as well as in obstinate metrorrhagia occurring after delivery.

**Orthoform** is reported by Dr. H. H. Wilson,<sup>2</sup> of Clayville, N. Y., to have produced on a patient a dermatitis similar at the start to that of rhus-toxicodendron poisoning, and he refers to two cases of a similar kind occurring in the practice of Dr. G. E. Decker, of Davenport, Iowa. The case of Dr. Wilson was that of a machinist, twenty-eight years old, who came to his office with suppurative cellulitis of the right forearm following an injury and infection of the hand. The suppurating foci were slit up and thoroughly cleansed with hydrogen peroxide and 1:2000 bichloride solution, and dressed with orthoform powder. These dressings were repeated every day for a week, the arm doing well. At the end of this time there appeared a peculiar dermatitis surrounding the incisions, which spread rapidly until nearly the whole arm was involved. The surface appeared red, swollen, and covered with small confluent blisters containing a sticky, serous fluid. After a few days many of the blisters coalesced and broke, drying up and leaving a yellowish crust. A peculiar branny odor emanated from the involved surface. There was no pain on pressure or manipulation, but the most intolerable itching was constantly

complained of, and at one time the patient became nearly delirious from this cause. There was some slight elevation of temperature.

After many remedies had been tried without any result, hot applications of witch hazel were used, when the itching immediately ceased and the dermatitis slowly disappeared.

The doctor states that aside from this case he has had invariably good results from the use of orthoform in his practice.

**Veratrum Viride** is said by Dr. E. E. Rothrock,<sup>1</sup> of Tennessee Colony, Tex., to be of great service in diseases of the kidneys and bladder, in fever where the pulse is full, fast and corded, in cases where an alternative is required, in exanthematous diseases, especially scarlatina, and in meningitis, phrenitis and cerebral difficulties generally. He uses the fluid extract.

Used as a liniment in sprains, bruises or tumors, it is excellent; used in rheumatic enlargements of the joints, in eczema, etc., it has a curative effect, as a lotion with glycerin, externally applied to the parts; in erysipelas, it is a fine agent applied locally to the parts, reducing the inflammation of the skin.

In combination with phytolacca it acts well in rheumatism and erysipelas, both internally and as a lotion. In doses of 2 drops every three hours, such a combination has a curative effect on stricture. With podophyllin it is of service in malaria, pneumonia, pleurisy, croup, asthma and disorders of the respiratory organs. The author says that given alone it is beneficial in amenorrhea, chlorosis, and leucorrhoea. It is contraindicated in paralysis, hectic hemorrhage, and pregnancy. In puerperal convulsions it is of great use given in large doses of 20 to 30 drops. In all conditions of depression he declares it to be as near to a specific as any drug we possess.

**Intestinal Antisepsis** in the diarrheal diseases of infancy is a subject of editorial comment in a recent number of a contemporary.<sup>2</sup> The editor states that the causes of the intestinal disorders of infancy are practically always bacteria or their products. He points out that an excess of even sterilized food may produce such disorders by causing the common bacteria of the intestines to become virulent. In all treatment whether preventive or curative, antisepsis must always be the aim. The editorial continues:

The virulence of organisms may be di-

<sup>1</sup>Centralbl. f. d. Gesam. Therap., XVII, p. 672.

<sup>2</sup>N. Y. Med. Jour., LXX, p. 676.

<sup>1</sup>Wisconsin Med. Recorder, 11, p. 295.

<sup>2</sup>Pediatrics, VIII, p. 556.

minished by modifying their environment. In order to benefit our patient it is not absolutely necessary to kill the germs.

Prof. Yeo considers as ideal antiseptics for the small intestine such substances as are insoluble in the stomach and to some extent volatile, so that their influence may be diffused into the gases in the intestine.

Bouchut has shown that the toxicity of the urine varies directly as the amount of putrefaction going on in the intestinal canal, and that such putrefaction can be diminished by the employment of certain intestinal antiseptics. The amount of aromatic sulphates present in the urine, provided aromatic drugs have not been administered, is also a gauge of the putrefactive changes in the intestine. These aromatic sulphates are diminished by irrigation of the colon. Dr. V. Hurley and Dr. F. Goodbody, using aromatic sulphates as a gauge, have found that when putrefaction is increased, calomel in small doses tends to diminish it.

All are now agreed upon the efficacy of irrigation of the colon in infantile diarrhea. Many employ lavage of the stomach in addition. It is satisfactory to know that the correctness of the present methods of treating digestive disorders of infancy is emphasized by the above investigations.

**Sparteine** with potassium iodide is employed by Dr. Carrier<sup>1</sup>, of Montpellier, for *cardiopathies with arteriosclerosis*. Where valvular lesions accompany such generalized condition digitalis is contraindicated, because it increases blood-pressure; sparteine stimulates the heart without increasing blood-pressure. The association of potassium iodide in these cases is indicated by the arteriosclerosis, in which it is especially beneficial. The author gives the following formula:

Potassium Iodide.....	8	to 15 grn
Sparteine.....	1½	grn.
Julep .....	3	oz.
Syrup Bitter Orange Peel.....	1	fl. oz.

To be taken in the course of a day.

**Orexine Tannate** has been used by Dr. E. Zeltner,<sup>2</sup> of Dr. Penzoldt's clinic in Erlangen, in a large number of cases of *anorexia*, 53 of which, comprising a few treated by colleagues, he reports on. Of these cases, 30 were distinctly benefited, 9 imperfectly, and 14 not at all. In several cases the orexine tannate caused a voracious appetite, and in general the appetite was permanently restored after the first

dose, or after a few days' treatment. Treating in groups, the orexine was found to be effective in 10 out of 13 cases of pulmonary tuberculosis. In severe febrile cases, the orexine is of no service. In incipient phthisis, on the contrary, it is unquestionably effective. Of 7 cases of anemia and chlorosis, it was serviceable in 5, in the remaining 2 uncertain. Out of 9 cases of chronic emphysematous, cardiac, and renal affections, 5 were benefited. In 12 cases of convalescence following serious diseases, the orexine was of benefit in half the number. In 6 cases of mild affections of the digestive organs it was of great benefit, but in severe cachexias no results were obtained.

The results are summed up by the author as follows:

Orexine tannate is fully equal in effect to the orexine or orexine hydrochlorate previously used. In doses of from 0.3 to 0.5 Gm. (5 to 8 grn.) twice daily, it has caused no unpleasant by-effects, and is, hence, superior to the other preparations. It may be taken in powder form, and does not appear to be subject to change on keeping.

Orexine tannate deserves to be used particularly in incipient pulmonary tuberculosis, anemic conditions, mild digestive disturbances, convalescences, and for nervous subjects. It may be given with advantage to healthy persons to overcome the disagreeable by-effects caused by eating radishes, cucumbers, or other foods against which an idiosyncrasy exists.

The indication for the administration of orexine is a diminished secretion of hydrochloric acid. Since, however, the gastric contents can not always be examined, and the remedy, as shown, may be given with perfect safety to healthy subjects, it is proper to administer it in all cases of suspected subacidity.

**Viburnum Prunifolium**, according to Dr. E. E. Rothrock,<sup>1</sup> of Tennessee Colony, Tex., is a remedy possessing many excellent qualities, having been a favorite of his for many years. He states that it is valuable in aphthæ, as a wash to ulcers, and in ophthalmic affections. It is curative administered internally in chronic diarrhea and dysentery, and in palpitation of the heart. It exerts a tonic influence upon the uterus and its appendages. In threatened abortion, if given in time, it seldom fails; it is very useful in relieving severe after-pains. Its action is sure and positive as a prevention in cases of habitual miscarriage; the use should commence a week or two previous to the period of aborting time and be continued through the remaining period of

<sup>1</sup>La Sem. méd., 1899, No. 45, p. 360.

<sup>2</sup>Therap. d. Gegenw., I, No. 11.

<sup>1</sup>Wisconsin Med. Recorder, II, p. 296.

pregnancy. *Viburnum prunifolium* and *mitchella repens*, combined or alternated, act like a charm in abortion, exerting a sedative influence on the organic, sympathetic system of nerves, governing principally the fundus of the uterus, and secondarily affecting the cerebro-spinal system, which supplies the cervix, their filaments being reflected to the body of the organ.

The author says that he has given the fluid extract for months in doses ranging from 20 to 60 drops three times a day in threatened miscarriage, with the result of the woman going on to full term.

It will frequently cure nervous headaches; in headaches occurring in the puerperal state it often acts promptly, giving relief in a few minutes. In dysmenorrhea, menorrhagia, and amenorrhea it is of use, relieving promptly, given in doses of 30 to 60 drops of fluid extract every fifteen, thirty or sixty minutes, as indicated. It cures menorrhagia by its sedative and astringent propensities, controlling reflex irritation, and checking and preventing hemorrhage.

**Anticholera Serum** (Haffkine's) has for several years been under trial in India as a preventive of *Asiatic cholera*. A. Powell,<sup>1</sup> who, with M. Haffkine, has had a large number of estates and villages under his care, now reports that out of a population of 12,327, 5,778 were inoculated and 6,549 were not. Among those inoculated there were 27 cases of cholera and 14 deaths. Among those not inoculated there were 198 cases of cholera and 124 deaths. Had the number of cases been proportionate among the inoculated and non-inoculated, there would have been 174 instead of 27, and 109 deaths instead of 14. It thus appears that 95 lives were saved by the inoculations, and 147 persons escaped the cholera who otherwise would have had it. The mortality among the non-inoculated was 7 $\frac{1}{4}$  greater than among the inoculated. In commenting on the tabulated figures published up to the present time, the author says:

Judging by the figures one might conclude that the protection conferred by inoculation diminishes as time goes by. In confirmation of this supposition, it may be observed that the most favorable statistics are those of Duna, where the majority of the inoculations were performed in the beginning of 1896. In this Duna group of houses about half the population was inoculated—at the beginning of the epidemic the non-inoculated were in the majority—but deaths from cholera reduced their numbers,

till at the close of the epidemic the inoculated outnumbered them. There were eleven deaths among the non-inoculated moiety, and but one among the inoculated. It is perhaps worth mentioning that this case was inoculated much earlier than any other in Duna, on February 9, 1895.

Up to 1895 Haffkine used attenuated virus for his work, beginning with a very weak serum and gradually proceeding to a more and more concentrated one, thus requiring two or more successive inoculations to produce immunity. Later, Haffkine thought it possible that the primary inoculation was unnecessary in the human being, and that perhaps even virulent cultures had no local necrosing action on man.

Experiment alone could prove this. With characteristic self-sacrifice, Haffkine asked the author to inoculate him with three times the maximum dose of a very virulent comma. He had been inoculated two years previously with the primary vaccine, but considered any immunity had passed off after so long an interval. As he was very much pulled down by overwork and malaria at this time it was with great reluctance that the author consented. Considerable local reaction ensued and high fever, which an examination of the blood showed was partly due to the plasmodium of malaria. No supuration or phlegmon resulted.

Since then the author has inoculated 1,123 persons with virulent, recently isolated vibrios, without using a primary weak "vaccine." In no case has there been any supuration or other accident.

Briefly described the method is as follows: The whole surface of agar in a sloped tube is inoculated with the comma, and cultivated for from twenty-four to thirty-six hours at a temperature of 40° C. The whole surface should then be covered with a uniform layer of growth. Sterilized water is then added to one-third the height of the agar, and the growth washed off and suspended in the water by rapidly rotating or shaking, till the surface of the agar is quite clear.

Half a cubic centimeter, about 9 min., is the dose for an average adult.

**Largin** has been extensively used by Dr. Alexander Porges,<sup>1</sup> of Prof. E. Finger's clinic of Vienna, in *gonorrhea*, with remarkably good results, it is reported. The remedy was used in the form of an injection, solutions containing 0.25 per cent. being first employed, and the strength gradually increased up to 2 per cent. The injections were made three times daily, each being re-

<sup>1</sup>*Jour. of Tropical Med.*, II, p. 115.

<sup>1</sup>*Wien. med. Presse*, 1899, No. 44.



tained in the urethra from ten to fifteen minutes at a time. Previous to the injection, the urethra was to be cleansed as far as possible, from adhering secretion, first by micturition, then by two or three injections of luke-warm water. In this manner the bactericidal effect of the largin was most powerfully exerted, and the best results attained. The entire freedom from irritation, as well as the certainty of action, inclines the author to consider largin as the best antigonorrhoeic now in use.

**Eurobin, Lenirobin, and Lenigallol** have been employed by Dr. J. Rau,<sup>1</sup> of Dr. Max Joseph's Polyclinic for Cutaneous Diseases, Berlin, with a view to their reducing effect in various *cutaneous affections*. The eurobin was used in thirty cases of psoriasis, and, although it was found to be effective, appeared to be less so than chrysarobin. More positive results were, however, obtained with lenirobin, which was used in eighteen cases of chronic tylosis, and in two cases of keratosis. The lenirobin was employed in 10-per-cent. solution in chloroform or traumaticin, and when a decided improvement had been obtained, was replaced by a 10-per-cent. eurobin-zinc paste.

The method of treatment consisted in first washing the affected parts with warm potassa-soap solution, drying, applying the paste, powdering, and bandaging with cotton, the bandage being allowed to remain on overnight. In the morning the bandage and paste were removed, the part washed with potassa-soap solution, dried, and then powdered. Under the treatment the callosities were reduced, the skin became softer and resumed its normal condition gradually, so that sensitiveness to touch as well as pliability were restored.

In those cases where rhagades were also observed on the affected parts, the results were not so satisfactory. The lenirobin paste or the solution occasioned pain, and their use had to be suspended until the rhagades had been cured by other indifferent ointments. The two cases of keratosis were both brought to a satisfactory state by a 10-per-cent. chloroformic lenirobin solution, followed by the paste. According to the author's investigations, lenirobin must be considered as a serviceable remedy in uncomplicated tylosis.

Lenigallol was used in six cases, comprising two of acute and four of circumscribed chronic eczema. In the acute cases it was unsatisfactory, but in the chronic cases it acted excellently. The application of a 10-per-cent. lenigallol-zinc paste after

previous energetic washing with potassa-soap enabled cures to be effected in a very short time. In the compact, torpid, extended conjunctival infiltrations which are so difficult—frequently impossible—to cure, lenigallol, like all other remedies heretofore employed, is ineffective.

**Carbolic Acid** seems to have been successfully used in large doses in the treatment of a case of the *bubonic plague* at the Government Civil Hospital, Hongkong, China.<sup>1</sup> The physician in charge was led to try it from reading of the good results derived from its use in other contagious diseases. While he does not think that one case proves much, still he believes the promise it holds forth makes it worth while to give it a fair trial. The patient was a Scotchman, aged thirty years, a sanitary inspector of the hospital. He caught the disease by accidentally abrading the skin of his left elbow while handling a plague patient. On his first night in the hospital ward as a patient his temperature was 104.3° F., and his pulse 108, while there was enlargement of glands and tenderness in the femoral region. Calomel was given for his bowels, migrainin for headache, and morphine for insomnia. On the second day plague bacilli were found in his blood; 3 grn. of carbolic acid was ordered in the form of pills every hour. At midday his temperature was 105.6°; 4 grn. of phenacetin and 1 grn. of caffeine citrate were given. At 4 P. M. the temperature was 105° F. Pressing carbolic acid in 2-grn. doses was now begun. In two days the temperature went down to 101° F., and in three more it was normal. The diet given during the acute stage was liquid and stimulating, 6 fl. oz. of brandy being given during twenty-four hours, later reduced to 2 fl. oz. One bubo was quite large, suppurated, and was incised.

**Hemogallol** was used in two cases of *anemia* by Dr. Raimondo Guaita,<sup>2</sup> of Mailand. The patients, boys aged four and six years respectively, were greatly benefited. At the end of two and three months respectively, both showed reddened cheeks, and the mucosa had lost the characteristic pallor incident to anemia. Doses of 1 Gm. (15 grn.) per day were first given, and were increased to 1½ Gm. (24 grn.) at the end of two months. The remedy was well borne by the children, and caused no constipation, such as is frequently observed to follow the administration of iron compounds. Both children gained in weight.

<sup>1</sup>*Lancet*, II, No. 24, p. 1589.

<sup>2</sup>*Corriere Sanitario*, 1899, No. 4.

<sup>1</sup>*Deut. Aerzte-Ztg.*, 1899, p. 249.



Dr. Giovanni Pugliese<sup>1</sup> of the Hospitale Maggiore, of Lodi, reports having used hemogallol in four cases, the clinical histories of which are given. These go to show that doses of from 1 to 1.5 Gm. (15 to 24 grn.) per day are well borne, rapidly raise the red-blood-corpuscle content of the blood, and cause no constipation. The excellence of the results obtained inclines the author to recommend hemogallol.

Dr. Giovanni Battista Pinetti,<sup>2</sup> of the Hospitale Maggiore at Bergamo, gives the clinical histories of eight cases in which he has used hemogallol, with very satisfactory results.

The remedy, in his hands, fully met the claims made for it—i.e., ready absorbability, power of rapidly increasing the number of red blood-corpuscles in the blood, and ability to promote metabolism and to increase the appetite. The hemogallol was given in doses of 0.25 Gm. (4 grn.) just before meals, the daily dose amounting to 1 Gm. (15 grn.). It was found to be an excellent reconstructive tonic, and to be readily borne by even the weakest stomach when taken shortly before meals. Anorexia, flatulence, and the sense of pressure at the epigastrium rapidly disappeared, when present. Gastric or intestinal disturbances of any kind were not noted. Taken altogether the author considers hemogallol to be at the head of all the iron preparations deserving of use in anemia.

**Ichthyol** has been used in *whooping cough* by Dr. Souther,<sup>3</sup> who reports the successful treatment of his four children with ichthyol in grain doses, given at first every four hours.

The ages of the children ranged from two years and six months to eight years. In two days the dose was increased to 2 grn., then to 3 grn. and 4 grn. every four hours. At the commencement of treatment the paroxysmal cough occurred about twenty-five to thirty times in the twenty-four hours; after four days of the ichthyol the number of attacks was reduced to about six in the twenty-four hours, and at the end of the week from two to three. All the others symptoms, too, improved correspondingly.

"I was so pleased with the result," the author states, "that I tried it in ten others with almost uniformly favorable results. The only failures I had were when I employed too small a dose. I saw no unpleasant effect in any case from the administra-

tion of ichthyol, the children taking it well. I shall be very glad to learn the opinions of others who may have tried ichthyol in pertussis."

**Infectious Conjunctivitis** and its therapeutics was the subject of a paper read by Prof. D. S. Reynolds,<sup>1</sup> of the Medical Department of the Central University of Kentucky, at the late meeting of the Mississippi Valley Medical Association, at Chicago. The author pointed out the importance of his subject in that more than one-fourth of all the blindness in the world is due to this disease. He called attention to the necessity of using sodium chloride in all solutions employed for irrigating the eye, as without this they are sure to irritate. He charges the old-fashioned treatment with caustics of being the cause of the deformities, cicatrizations, atrophies, sphacelations, and staphylomas once so common. Since the adoption of the newer treatment these have become practically unknown. All the infections, he holds, are retarded by alkaline lotions and aggravated by astringents and caustic applications. Where the infection is that of the white staphylococcus he finds the following irrigating solution valuable:

Sodium Borate.....	3 oz.
Sodium Chloride.....	4 dr.
Water.....	1 gal.
Carbolic Acid .....	15 grn.

The frequency of irrigation is regulated by the rapidity of the accumulation of matter on the surface of the conjunctiva. The upper lid is everted, the irrigating bag hung twelve inches above patient's head, the nozzle held over the bridge of the nose, and the fluid allowed to run over the everted lid. This should be repeated at intervals of from one-half to one hour, gradually increased to two or more hours, until repetition is seen to be unnecessary. When yellow staphylococcus have to be dealt with, the same remedies can be used, but in some cases the irrigations must occur within periods of ten minutes. A week should bring a cure unless papillary hypertrophy has set in.

For the gonorrheal type a more efficient irrigation fluid may be made by dissolving 3 oz. of sodium chloride, 8 grn. of mercury bichloride, and  $\frac{1}{2}$  dr. of carbolic acid in 1 gal. of water, which should be filtered before using. With this the eye may be irrigated every ten minutes from the very beginning of the attack; and if the treatment is commenced before corneal or conjunctival abrasions occur, it is well-nigh certain they will not occur afterward. There

<sup>1</sup>Corriere Sanitario, 1899, No. 4.

<sup>2</sup>Corriere Sanitario, 1899, No. 31.

<sup>3</sup>Med. Times, XXVII, p. 373.

<sup>1</sup>Med. Mirror, X, p. 595.

is always some danger, in the case of infants especially, of injuring the cornea with the nurse's finger-nails; and lest this accident should come from contact with the nozzle of the irrigator, great care should be taken never to allow the instrument to approach nearer than 1 inch. To perform the irrigation properly, two persons are required. First, having prepared the irrigation and placed the patient on his back, one person may evert the lid and hold a mass of absorbent cotton wool on the temple to catch the outcoming discharge, while the other person manipulates the irrigator alone.

In addition to the agents mentioned potassium nitrate in combination with hydrastis, formaldehyde solution (1 part to 2000 parts of water or 1:4000), silver nitrate (1:2000 or 1:4000), corrosive sublimate (1:1000 or 1:10,000), and finally saturated solution of boric acid, have all had their advocates. Each one is used by irrigation and all show vastly improved results over the older methods.

**Diphtheria**, according to Dr. H. B. Sheffield,<sup>1</sup> physician to the Metropolitan Dispensary and Hospital for Women and Children, New York city, causes death either by septic poisoning or by obstruction to the air-passages. On this account he says that the following procedure commends itself in its treatment:

1. Endeavor to subdue the hyperemia and excessive exudation in the throat in order to avoid respiratory obstruction.

2. Destroy at the earliest moment the diphtheria bacilli at their point of entrance in order to prevent the excessive formation and immediate absorption of the diphtheria toxin.

3. Increase the power of resistance of the patient and administer such remedies as will combat or neutralize the toxic substances, thus preventing their dissemination in the internal organs of the body.

4. Promote the action of the lymphatic system, kidneys, and bowels in order to eliminate rapidly the poisonous products.

In following Nos. 1 and 2, germicides must be used, but care must be exercised that they do not act simultaneously as active escharotics. The author applies to the throat of his patients, by means of a cotton swab, a combination of carbolic acid and camphor dissolved in alcohol and glycerin, together with papain as a solvent for the membrane. Eight grains each of the carbolic acid and camphor are used in a 2-oz. solution. The throat is painted with this every two hours and a new swab used every

time. For the nose the author uses the following:

Hydrogen Peroxide..... 4 fl. dr.  
Sodium Borate..... 2 dr.  
Glycerin ..... 2 fl. oz.  
Rose Water..... to make 4 fl. oz.

One tablespoonful to be instilled into the nose every two hours in the presence of diphtheritic membranes in the nares, and every four hours in their absence.

The third and fourth indications must be met with good nourishment, iron preparations, nerve and heart stimulants, diuretics, and laxatives. In giving stimulants he never waits for cardiac debility to set in, but always anticipates its possibility from the very start. Where food cannot be administered by the mouth, nutrient enema should be resorted to. The author is in the habit of prescribing the following:

Tinct. Iron Chloride.. } of each, 2 fl. dr.  
Tinct. Myrrh..... }  
Glycerin..... 2 fl. oz.  
Syrup Ginger..... to make 3 fl. oz.

One teaspoonful to be given every three hours to a child three years old.

Strychnine Sulphate.....  $\frac{1}{4}$  grn.  
Solut. Iron and Ammonium  
Acetate..... 3 fl. oz.

One teaspoonful to be given every six hours to a child three years old.

The author rarely uses antipyretics, but finds that small doses of any of the stimulating synthetic products answer well to reduce temperature and relieve pain. A laxative administered once a day is useful. In marked irritability of the child, sodium bromide, combined at times with a small dose of chloral, is very serviceable.

In laryngeal diphtheria, if any deposit is visible along the fauces, he uses the first mixture given and he always orders cleansing the nose with the second. In severe cases intubation should be practiced, to avoid resorting to tracheotomy. The internal remedies enumerated are of undoubted value in this form. After intubation no liquids must be given by the mouth; strychnine should be administered hypodermically.

For the reduction of the swelling of the submaxillary glands, iodine ointment with 10 per cent. of ichthyol is an excellent remedy. The author now uses antitoxin in all cases of laryngeal diphtheria, stating that he has had good results from its use in combination with the other treatment, but is not prepared to say how much of the benefit is due to the antitoxin and how much to the other remedies.

<sup>1</sup>N. Y. Med. Jour., LXX, p. 954.

# The Prescription

We wish to have our readers use this department with the utmost freedom. Any question about the prescription or about any substance used in prescriptions comes within its range. We shall do our best to find correct answers for all, and if we fail for lack of information at hand, some one of our readers may be able to give the right reply. On questions of therapeutics or practice we shall not attempt to give any opinions of our own, but find for the questioner what the best available authorities on such subjects have to say upon them. Let every reader resolve his doubts about compatibilities, doses, latest remedies, best methods of administration, dangers of remedies, etc. Send in favorite prescriptions and let others be benefited by what you have discovered. We shall give full credit for all such information. As some persons do not care to have their names appear as the authors of queries, we will refrain from giving names in this connection when requested to do so. Sometimes it is an advantage to have the writer's name published, and in such cases we hope that over-diffidence will not interfere with the right.

J. G., of Vermont, wishes to know what the proper dose of TRINITRIN is. He has given it in doses of  $\frac{1}{100}$  grn. to a patient, but finds that after two or three doses it always gives headache. He tried it upon himself, with the same effect. All the text-books give this as the initial dose and  $\frac{1}{50}$  grn. or more as the maximum, so he is anxious to know whether his patient and himself have a lack of normal tolerance for the drug or whether the solution used was too strong. The dose of nitroglycerin, like the dose of morphine, is very variable. Cases have been reported in which  $\frac{1}{100}$  grn. has produced insensibility, and one case is reported in which  $\frac{1}{10}$  grn. was given every three hours for twenty-four hours. Dr. Armstrong, in the *Medical News* of October 31, 1896, reported experiments that seemed to show that nitroglycerin produces poisonous symptoms only after it has relaxed the arterial walls beyond their normal tonicity. When it is able to do this, whether the dose given is large or small, toxic symptoms occur. He sums up his results as follows: "(1) It is only when dealing with arteries in which there is no more than the normal tonicity of the walls that the drug is liable to produce disagreeable effects. Under this condition it should be administered with caution and in small doses. (2) In cases of arterial tension the drug can be used more freely than has been customary among practitioners, the dose being proportioned to the degree of tension. (3) In cases of arterial tension tolerance of the drug is rapidly acquired, and by a slight increase day by day very large doses can soon be taken with safety, the constant guide being the degree of tension in the arterial wall."

S. J. W., of Michigan, writes as follows: "I have been taught that the tissue change going on in the human body, repair and waste, is the cause of the body temperature, that this change is a chemical one, and that every chemical change produces a certain amount of heat. I have also been taught

that in making ice cream, salt is added to the ice because it makes the temperature lower—that this chemical change requires a certain amount of heat. I suppose that the breaking up of the salt crystals may be called a chemical change, and that this absorbs the surrounding heat, even from the ice, and thus the temperature is lowered. Both teachings were from high authority, yet to me they seem exactly opposite. Will you please clear up the question?" Both statements are true. The difficulty with our correspondent is in his taking the dissolving of a body to be a chemical union in the same sense, for instance, as in the case of adding sulphuric acid to a solution of ammonia. In this the ammonium and the acid unite to form ammonium sulphate, a substance totally different from the two constituents named. The dissolving of a body is more in the nature of a physical change. What chemical change is supposed to take place is of the reverse nature to that of union. The united bodies are torn apart and the cohesive force is overcome. To pull bodies apart that cohere means work, and work must be done at the expense of heat. When water is converted into steam it takes heat from the furnace. When a crystal is diffused through a liquid by solution it takes heat to bring about this diffusion. Steam is only a solution of water in air in most instances. When ether is poured on the hand and its vapor passes into the air, it does so at the expense of the heat around it. This is why it feels cold. A crystal does the same thing in water as the ether does in air. Some crystals make the water around them cooler than others for physical reasons analogous to those that make liquid air cool things around it more than evaporating ether does. In chemically uniting, bodies cohere; in dissolving, work is done on the bodies. When they cohere they give out heat. When work is done upon them it is done by and at the expense of heat.

A second question from the same correspondent is as follows: "Health boards in



many parts of the country instruct people to fumigate with sulphur, *without* removing curtains, clothing, etc. I was taught that the fumes of sulphur would destroy, more or less, fine clothing, bright colors, lace curtains, etc. Is this true or not? If it injures clothing, does it do so by destroying the fiber? If it destroys colors, how does it produce the change? Is it by uniting with the oxygen contained in the colors?" When rooms are fumigated with burning sulphur, and the air in the rooms and the furniture and clothing are *dry*, no great harm can be done, within the time usually consumed in disinfecting a house to the extent that this is usually done. It is only in the presence of moisture that sulphur fumes do great harm to colors and fabrics. The sulphur dioxide in the presence of water abstracts oxygen from the coloring matter, changing its chemical composition so that it is no longer of its former color. As soon as the dioxide has secured the oxygen it changes into sulphuric acid by contact with the moisture. As sulphuric acid it further damages fabrics by rotting them. While the dry fumes of sulphur no doubt do some good as a disinfectant, the amount of good done is very small compared to what it would be if it were associated with steam or if wet walls, wet floors, and wet goods were exposed. To enable it to do its maximum of good everything should be removed from the room and floors and walls wet or dampened. It is only when dangerous to fabrics and colors that it is most dangerous to germs.

This month a selection has been made of a large number of prescriptions for use in diseases of women. No doubt many of our readers live where those who make a specialty of gynecology are not numerous, but where cases requiring such knowledge fall to the lot of the general practitioner.

#### Hysteria:

Monobromated Camphor } of each, 45 grn.  
Extract Valerian } of each, 45 grn.

Make into 30 pills and coat with silver foil.  
One pill three times a day.

—KRAFFT-EBING, *Med. Record*.

#### Flushings and Vertical Headache:

Diluted Nitric Acid..... 1 fl. dr.  
Water..... 2 fl. oz.

Teaspoonful in a wineglassful of water three times a day.

BULKLEY, *N. Y. Med. Jour.*

#### Pruritus Vulva:

Ichthyol..... 75 min.  
Simple Ointment..... 1 oz.

Anoint the parts as required.

—DOIZY, *Med. News*.

#### Tetanic Uterine Contraction:

Tinct. Iodine..... 15 min.

Alcohol..... 30 min.

Five drops in half a tumblerful of hot water every half hour. —MÜLLER, *Riforma medica*.

#### Leucorrhœa:

Lactic Acid..... 30 min.

Glycerin..... 2 fl. oz.

Soak tampons in this and pack them in the vagina. —GAZ, *hebd. de Med.*

#### Sore Nipples:

Olive Oil..... 4 fl. dr.

Hydrated Wool-fat.... } of each, 4 dr.

Petrolatum..... } of each, 4 dr.

Boric Acid..... 10 grn.

Smear the nipples gently and cover with antiseptic gauze. —DAVIS, *Med. Record*.

#### Amenorrhœa:

Tinct. Iron Chloride..... 3 fl. dr.

Tinct. Cantharides..... 1 fl. dr.

Tinct. Guaiac, Ammoniated... 12 fl. dr.

Tinct. Aloes..... 4 fl. dr.

Syrup..... to make 6 fl. oz.

Tablespoonful three times a day.

—DEWEES, *N. Eng. Med. Monthly*.

#### Dysmenorrhœa:

Alcoholic Ext. Conium..... 15 grn.

Alcoholic Ext. Scammony } of each, 5 grn.

Ext. Opium..... } of each, 5 grn.

Make into 10 pills and give one three times a day.

—GAILLARD'S *Med. Jour.*

#### Mental Depression in Pelvic Disease:

Strychnine Sulphate..... ¼ grn.

Quinine Sulphate.... } of each, 1½ grn.

Ext. Hyoscyamus.... } of each, 1½ grn.

Reduced Iron..... 1 grn.

For one pill. Dose: one such pill three times a day.

—TALLEY, *Med. Record*.

#### Vaginal Gonorrhœa:

Alum..... } of each, 450 grn.

Borax..... } of each, 450 grn.

Quinine Sulphate..... 15 grn.

Carbolic Acid..... 30 grn.

Essence Thyme..... 30 min.

Glycerin..... 6 fl. oz.

A tablespoonful to a pint of tepid water for injection twice a day.

—LEUTAND, *Jour. de Méd. de Paris*.

#### Nervous Pruritus of Menopause:

Zinc Oxide..... 4½ grn.

Quinine Sulphate..... 36 grn.

Aloin..... 2½ grn.

Ext. and Powd. Licorice.. to make 20 pills

Give one pill three times a day.

—SHOEMAKER, *Med. Record*.

**Uterine Cancer:**

Arsenous Acid..... 4 grn.  
 Cocaine.....20 grn.  
 Water.....to make 25 fl. dr.

Inject a syringeful into the growth two or three times a week to ward off hemorrhage, fetid leucorrhea, and pain. —HUE, *Med. Record*.

**Ovarian Neuralgia:**

Extract Belladonna..... 4 grn.  
 Extract Stramonium ..... 5 grn.  
 Lactophenin.....90 grn.

Make into 20 pills and give two or three a day. —MARTIN, *Med. News*.

**Pruritus Vulva:**

Menthol..... 12 grn.  
 Alcohol.....90 min.  
 Distilled Water..... 3 fl. dr.  
 Diluted Acetic Acid...to make 1 fl. oz.

Apply locally as required.

—CUMSTON, *Med. Record*.

**Amenorrhea:**

Peptonized Iron.....30 grn.  
 Manganese Lactate.....30 grn.  
 Scammony.....30 grn.  
 Strychnine Sulphate.....  $\frac{1}{4}$  grn.

Make into 40 pills and give two to four each evening on retiring. —LUTAND, *Med. Record*.

**Relaxed Vaginal Mucous Membrane:**

Tinct. Capsicum..... 1 drop  
 Ext. Krameria.....130 grn.  
 Fl. Ext. Rose..... } of each, 11 drops  
 Tinct. Vanilla..... }  
 White Petrolatum..... 2 oz.

Apply freely as required. —*Med. Record*.

**Phlegmasia Dolens:**

Ext. Conium..... }  
 Ext. Hyoscyamus... } of each, 45 grn.  
 Ext. Belladonna..... }  
 Ext. Opium..... }  
 Purified Lard..... 1 oz.

Mix and apply over the inflamed veins once each day. —N. Eng. *Med. Monthly*.

**Pruritus Vulva:**

Cocaine Hydrochlorate..... 7 grn.  
 Tinct. Eucalyptus.....70 min.  
 Chloral Hydrate.....70 grn.  
 Distilled Water.....to make 8 fl. oz.

Apply as required.

—*Med. Rev. of Reviews*.

**Dysmenorrhea:**

Sodium Chloride.....15 grn.  
 Sodium Bicarbonate .....90 grn.  
 Acetanilid.....  $6\frac{1}{2}$  dr.

Give from 8 to 15 grn. every 2 to 6 hours, as conditions indicate. —ALLEN, *Med. World*.

**Pelvic Congestion:**

Magnesium Sulphate.....450 grn.  
 Iron Sulphate..... } of each, 120 grn.  
 Manganese Sulphate, }  
 Diluted Sulphuric Acid..... 45 min.  
 Distilled Water.....to make 4 fl. oz.

A tablespoonful to be taken in a wineglassful of water before breakfast.

—N. Y. *Med. Jour.*

**Uterine Spasm:**

Chloral Hydrate.....24 grn.  
 Syrup..... 5 fl. dr.  
 Distilled Water.....to make 3 fl. oz.

A tablespoonful every two hours.

—*Quebec Rev. médicale*.

**Vaginismus:**

Morphine Hydrochlorate..... 1 grn.  
 Cacao Butter.....225 grn.

Make into three vaginal suppositories and insert one when required. —N. Y. *Med. Jour.*

**Vaginal Douche:**

1.—Beta-Naphtol.....80 grn.  
 Alcohol..... 1 fl. oz.  
 Distilled Water.....to make 2 pints  
 Use with a fountain syringe.

2.—Powdered Alum..... } of each, 1 oz.  
 Powdered Boric Acid... }  
 Powdered Borax..... }  
 Hydrastine Sulphate ..... 9 grn.  
 Carbolic Acid..... 20 grn.  
 Oil Canella ..... 20 drops

Two large teaspoonfuls in a quart of water.

—HOUSE, *Med. Record*.

**Toothache Lotion:**

Iodine Liniment..... } of each, 3 min.  
 Tinct. Aconite... }  
 Chloroform..... 30 min.

Dry the gum and apply with a camel's hair brush.

—ACKLAND, *Treatment*.

**Dental Periostitis:**

Tinct. Iodine..... } of each, 80 min.  
 Tinct. Opium..... }  
 Tinct. Nut Galls..... }  
 Carbolic Acid..... : 8 min.

Paint on the gums twice a day.

—WITZEL, *Med. News*.

**Dental Caries:**

Carbolic Acid..... } of each, 1 dr.  
 Es-sence Lemon..... }  
 Alcohol..... 5 fl. dr.

Wash and dry the cavity, soak a small piece of cotton with the solution, insert, and then cover it with another small piece of cotton soaked in tincture of benzoin. —*Gaillard's Med. Jour.*

# Of General Interest

## **Cerebral Hemorrhage and the Sign of Kernig.**

M. Widal, in speaking at the Medical Society, said that he had recently observed a case of meningeal hemorrhage which had been revealed to him by the existence of Kernig's sign. A man of thirty-eight was seized suddenly with an apoplectic attack. When he recovered consciousness a few hours afterwards he presented neither fever nor paralysis. He complained only of intense headache, pain in the back, while the pupils were somewhat dilated. The existence of the sign of Kernig was observed, and a lesion of the meninges was immediately suspected. In the dorsal position, the man could keep his legs extended on the thighs, but once he was seated on the edge of the bed, his legs were drawn towards the thighs. Five days after the accident the temperature rose somewhat, and on the ninth day the patient succumbed. When the cranium was opened a clot of blood was found beneath the arachnoid and extending down towards the bulb, while the rhachidian canal was filled with blood. The clot then did not intersect either the circumvolutions of the base of the brain or those of the convexity. That fact proved that the sign of Kernig could exist independently of all inflammation of the coverings of the cerebral circumvolutions, and that its *raison d'être* was rather to be imputed to an irritation of the spinal membranes. If the sign was more frequently absent in tuberculous meningitis than in cerebro-spinal meningitis, the reason probably was that in the first-named affection, the rhachidian membranes were less affected than in the second.—*Paris Corresp. Med. Press and Circular*.

**Opposed to Vaccination.**<sup>1</sup>—Our friends the Christian scientists are getting to occupy a very prominent place in the courts all over the country. The most recent instance of their defiance of the law occurred in Americus, Ga., where, according to the press dispatches, almost the entire body of the elect were brought before the mayor's court to answer to the charge of refusing to submit to the ordinance requiring vaccination of all unprotected persons. It is stated that among the number were twenty ladies, many of them prominent in the community. They will probably be given the choice of going to jail or being quarantined in their homes. A Mrs. Raines, for the same offense, was sentenced to jail for

thirty days. That peculiar obtuseness of mind to anything savoring of reason or common sense, which is so highly developed in the followers of Mrs. Eddy, is well exhibited in the present case, for, if there is anything in medical science more than another susceptible of incontrovertible proof it is the efficiency of vaccination as a prophylaxis against variola. That portion of the cerebrum, however, which takes cognizance of facts or accepts the evidences of the five senses seems to respond no longer to its natural stimulant in the brain of the Christian scientists. So long as these people confine their practice to matters concerning themselves alone, no one has a moral or legal right to interfere—an individual is entirely at liberty to treat himself by any method he chooses, or to dispense with treatment altogether in so far as his liberty does not infringe upon the rights of others—but when freedom in this respect jeopardizes the health of the community by ignoring, for instance, the ordinary safeguard observed by all reasonable men against the spread of highly contagious and deadly diseases, his so-called individual rights cannot be maintained in law or in morals.

**The Course of the Plague.**—A case of what was undoubtedly the plague was discovered on December 12 in the person of the bookkeeper in a Chinese establishment in Honolulu. The council of state was immediately called in extraordinary session, and appropriated \$25,000 for the use of the board of health in combating the disease. The Oriental quarter was at once quarantined, and no one was allowed to enter or leave this section without a permit from the board of health. Within twenty-four hours after the bookkeeper's case had been diagnosed as the bubonic plague five deaths had occurred, all from the plague. Fumigation plants and crematories were established at the four corners of the Oriental section, and the bodies of the dead were cremated. The transports "Warren," "Centennial," and "Newport" were in the harbor, but left in the course of the week, the first named for Manila. The others reached San Francisco on December 27, and were detained at quarantine. In India a recrudescence of the epidemic is threatened. Ahmednuggur has suffered very badly from the plague, and is not yet free from it. Sholapur now has a severe epidemic. Bombay is thought to be

<sup>1</sup>*N. Car. Med Jour.*, XLIV, No. 10, p. 303.



in the beginning of another plague experience. Parts of the Satara district have been badly attacked. News from reliable sources in the Orient is to the effect that the disease is prevalent in China and also in Japan, and the officers at Manila have taken precautions to prevent the plague from getting a foothold there. In Mauritius during December there were twenty new cases of plague in the island, and twelve deaths from the disease occurred during the same period. A dispatch from Manila, dated January 3, states that the health officers have found a native having all the symptoms of bubonic plague in a house in the walled city, where two deaths which may have been due to plague have occurred. The patient has been isolated and every precaution has been taken to prevent a spread of the disease. The quarantine system in the Philippines has been placed under the direction of the Marine-Hospital service. There are already two quarantine plants in the islands, and some of the surgeons of the Marine-Hospital service are already on their way to Manila and are expected to arrive there within a short time.<sup>1</sup>

**A Proposed Investigation** of the Native Drug Plants of the United States.—It is gratifying to find that the Secretary of Agriculture, the Hon. James Wilson, favors such an investigation, as is shown by the following extract from his annual report:

"The collection of native drug plants in the United States, considered from a purely financial standpoint, aside from medical and humanitarian aspects, involves the expenditure of millions of dollars annually. The commercial extermination of some of the most useful species is already threatened, and doubtless others would be found in the same conditions were the facts known. The price of one native plant, ginseng, our exports of which average more than a million dollars annually, has more than quadrupled in the past thirty years, so that its cultivation, as urged four years ago by this department, has now become profitable. It is clear from this and many similar cases that the native drug industry is capable of either decline or improvement, according to the way in which we handle it.

"The Pan-American Medical Congress has recently submitted to me a proposition to co-operate with this department in a technical and statistical investigation and classification of our native drug plants. By accepting this proposal we shall secure, in a research of which we have long felt the

need, the cordial assistance and support of an influential association of learned physicians; we shall encourage each of the other American nations, all of which are represented in the Pan-American Medical Congress, to proceed with a similar investigation of their own medical flora; we shall furnish a basis for the remunerative employment of much land and many people, and we shall stimulate the great growth and growing trade in drugs between the countries of North America and South America. I urge the appropriation of \$10,000 to enable this department to co-operate in this investigation."<sup>1</sup>

**The Power of the Imagination.**—The influence of the imagination is a factor with which physicians have to reckon very largely, and in the minor ailments of life, at any rate, the most successful practitioner is he who possesses the faculty of inspiring confidence in himself to begin with, and then in the treatment he advises. A recent number of the *Psychological Review* relates an interesting experiment made by Mr. Slosson with the view of demonstrating how easily this faculty can be called into play. In the course of a popular lecture he presented to his audience a bottle containing distilled water, which he uncorked with elaborate precautions, and then, watch in hand, he asked those present to indicate the exact moment at which the peculiar odor was perceived by them. Within fifteen seconds those immediately in front of him held up their hands, and within forty seconds those at the other end of the room declared that they distinctly perceived the odor. There was an obstinate minority, largely composed of men, who stoutly declared their inability to detect any odor, but Mr. Slosson believes that many more would have given in had he not been compelled to bring the experiment to a close within a minute of opening the bottle, several persons in the front rank finding the odor so powerful that they hastily quitted the lecture room.—*Med. Press and Circular*.

The British Medical Association will hold its sixty-eighth annual meeting at Ipswich, from July 31 to August 3, 1900. The president will be Dr. W. A. Elliston, and the local secretary Dr. E. A. Barnes, of Eves.

Wm. A. Hammond, M.D., ex-surgeon-general of the U. S. A., died at his home in Washington, D. C., on January 5 of heart failure. It will be recalled that deceased, after being dismissed from the army in 1864 on a charge of irregularity in award of contracts for medical supplies, was restored to his position in 1878. He was a voluminous writer on medical subjects, and connected with the medical press.

<sup>1</sup>*Med. Record*, LVII, No. 1, p. 21.

*N. Y. Med. Jour.*, LXXI, No. 1, p. 35.

# Book Notices

The first of the enlarged special monthly numbers of the "PHILADELPHIA MEDICAL JOURNAL" was issued January 6, 1900. "Throughout the year, July and August excepted, the first issue of each month will be enlarged by about twenty-five pages and will be devoted in great part to original contributions by the leading investigators, clinicians, and surgeons of the profession upon some especial topic of timely and general interest." Such is the programme laid down by the publishers, and if each special monthly compares favorably with the first one, the plan will rebound greatly to the honor of American medicine. The present number contains a number of striking articles upon the subject of the "X-Ray in Medicine and Surgery." The great difficulties which have been overcome in reproducing the delicate shadings of X-ray photographs in newspaper pages will be appreciated by those who know somewhat of the "art preservative."

The second section of the "LEHRBUCH DER HISTOLOGIE UND DER MIKROSKOPISCHEN ANATOMIE, mit besondere Berücksichtigung des menschlichen Körpers, einschliesslich der mikroskopischen Technik," by Dr. Ladislaus Szymonowicz, has just appeared. In our January number was noted the first section, whose general excellence is duplicated in the second. It treats of the muscular and nervous tissues, and of the blood and lymph, which subjects complete the first part of the work, and then begins the second part, devoted to the microscopical anatomy of the organs. A number of handsome colored plates accompany the present section. The work will be completed in five sections, which will be well worthy a place in the library of every student of histology.

The absence of a complete work in English on the anatomy of the central nervous system has been felt more and more by teachers and practitioners, owing to the rapid development of knowledge along this line. N. C. Gordinier, A.M., M.D., professor of physiology in the Albany Medical College, seems to have met the demand in the form of a fine octavo volume entitled *THE GROSS AND MINUTE ANATOMY OF THE CENTRAL NERVOUS SYSTEM*. The work contains 589 pages, is printed on excellent paper, is well bound, and is illustrated with 48 full-page plates and 213 other illustrations, many of which are printed in colors, a large number being from original sources. (Philadelphia: P. Blakiston's Son & Co. Price, net, cloth, \$6; sheep, \$7.)

Physicians who wish to keep up to date, but who have not the time nor inclination to master the elaborate text-books on bacteriology, will find what is necessary in a brochure on this sub-

ject recently published, entitled *AN ATLAS OF THE BACTERIA PATHOGENIC IN MAN*, with descriptions of their morphology and modes of microscopic examination, by Samuel G. Shattock, F.R.C.S., joint lecturer on pathology and bacteriology, St. Thomas' Medical School, London. There is an introductory chapter on bacteriology, its practical value to the general practitioner, by W. Wayne Babcock, M.D., pathologist to the Kensington Hospital for Women, etc., Philadelphia. (New York: E. B. Treat & Co. 16 full-page colored plates. Price, \$1.)

One process of diagnosis consists of three steps: (1) The collection of symptoms; (2) the deducting from these collective phenomena a gross diagnosis to arrive at the generic title of the affection; (3) the identification of the specific cause at work, thus adding to the specific cause a generic one; *e. g.*, tubercular bronchitis, rheumatic arthritis. This method has been followed in the work *INTRODUCTION TO THE OUTLINES OF THE PRINCIPLES OF DIFFERENTIAL DIAGNOSIS*, by the author, Fred. J. Smith, M.A., M.D. Oxon., F.R.C.P. Lond., physician and senior pathologist to the London (Eng.) Hospital. Its advantages will not fail to be appreciated on reading the book. (New York: The Macmillan Company. 352 pages, 5x8. Price, \$2.)

## Publications Received

*THE INTERNATIONAL MONTHLY: A Magazine of Contemporary Thought*. The initial number contains "Later Evolutions of French Criticism," by Edouard Rod; "Influence of the Sun upon the Formation of the Earth's Surface," by N. S. Shaler; "Organization Among American Artists," by Charles DeKay; "Recent Advance in Physical Science," by John Trowbridge; and "The Theatrical Syndicate," by Norman Hapgood. Each number will contain not less than three carefully elaborated essays on important topics. Frederick A. Richardson, Editor. Burlington, Vt.: The Macmillan Company, Publishers. Price, \$3 a year; single numbers, 25 cents.

*PHYSICIANS' POCKET MANUAL: Properties, Doses, Prices*. A handbook of the products of the laboratories of Parke, Davis & Co., including a complete price-list, corrected to September 1, 1899.

*TRACTION PLASTERS FOR TEMPORARILY CONTRACTING AN AFFECTED LUNG, IN LIEU OF THE MURPHY OPERATION*. By Charles Denison, A. M., M.D., Denver, Col.

*REPORT OF THE SURGEON-GENERAL, U. S. NAVY, Chief of the Bureau of Medicine and Surgery, to the Secretary of the Navy*. 1899.

*BAKING POWDERS—A treatise on the character, methods for the determination of the values, etc., with special reference to recent improvements in phosphate powders*. By Charles A. Catlin, B.S., Ph.B., F.A.A.A.S. Published by the Rumford Chemical Works, Providence, R. I.

# MERCK'S ARCHIVES

OF

## THE MATERIA MEDICA <sup>AND</sup> ITS USES

A MONTHLY JOURNAL FOR THE PRACTICING PHYSICIAN

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### Shall Therapeutics Henceforth Be Degraded to Empiricism?

ELSEWHERE in this issue of the ARCHIVES will be found an interesting and timely article from the pen of Prof. Robert Meade Smith, of the University of Pennsylvania, on Materia Medica and Vivisection. Herein we are reminded that for several years Dr. Gallinger, a medical practitioner, but who is at present Senator of the United States from New Hampshire, has been seeking to have a bill passed in the Senate to restrict the practice of animal experimentation in the District of Columbia. He is supported in his effort by the various Antivivisection Societies of the United States; by some medical men who believe that it is quite safe to experiment on men and let animals alone—and by a large number, besides, of men and women who are not so situated that they can give the subject the careful attention it deserves. Appeals to sympathy are made in a way that is almost certain to carry conviction to the hearts of the sympathetically disposed. In this way bishops and prelates, ministers and laymen, judges and lawyers, college professors and school-teachers, scientific men and inventors have been led to give expressions hos-

tile to all manner of animal experimentation. As Prof. Smith well remarks at the opening of his paper, "It hardly seems credible at this late day, . . . that it should be necessary to emphasize the fact . . . that all real and permanent advance in the art of therapeutics is based upon knowledge acquired through the experimental method." It is a fact, however, that this very incredible condition exists, and medical men are called upon to make the best of it and try, if possible, to enlighten the benighted. Just now their active mutual co-operation is needed in order to defeat this Gallinger bill, and Prof. Smith has pointed out how they can do so in the most effective manner. Let each reader of the ARCHIVES at once write a personal letter to the Senators from his own State, asking them to vote against Senate Bill No. 34. The enemies of therapeutic progress have in great numbers already written asking these same Senators to vote for it; and, unless an equal number of letters reach them from the friends of progress, the conclusion is sure to be drawn that it is a popular measure, in which case it is very likely to pass.



Therefore, offset some antivivisectionist's letter by one of yours. It is a duty every medical man owes his profession. The clique who are trying to crowd this bill through the Senate admit that it is merely "the entering wedge for more radical measures in the future." (*Antivivisection*, June, 1896, pp. 9 and 13, Aurora, Ill.) These people are, moreover, doing all in their power to create a feeling of distrust in the public mind against the most approved and most modern therapeutic measures. They denounce vaccination as worse than useless, serum therapy as a fraud, and every therapeutic measure that they are compelled to accept as coming to us through animal experimentation as a delusion. They are passing around printed pledges for signatures, asking every person to refuse to employ a doctor who believes in vivisection, and taking it for granted that whoever believes in bacteria as a cause of disease is likely to be a believer in vivisection. The New England Antivivisection Society tells us that it opposes vivisection "because the results of vivisection are as near to absolute worthlessness as it is easy to get—in fact, cause great and absolute harm." They also give as a reason for opposing it that

"the practice of vivisection has bred and  
"is breeding, in vivisectionists, a degree of  
"cowardice, meanness, hypocrisy, and in-  
"sane lust for cruelty that, it is to be  
"feared, will produce, in another genera-  
"tion, a race of educated monsters of de-  
"pravity such as this world has not  
"known and the imagination of mankind  
"cannot conceive. Already human vic-  
"tims are openly demanded by vivisection-  
"ists in Ohio, and every true vivisectionist  
"longs, in his heart, for human victims  
"to vivisection."

This is the kind of pabulum they serve out to unsophisticated people who have no means at their command to see how morally depraved the writers of such trash must be. Merely to present such a statement to those who know the facts is all that is needed for

its condemnation—without argument.

There is some truth, indeed, in the claim that human victims are demanded for experimentation. But who make this demand? Certainly not the vivisectionists. It is those who seek to stop animal vivisection. Prof. C. F. Hodge, of Clarke University, states the case exactly as it is. He says:

"Nearly one-half of our people are dying before the age of forty-one, almost  
"all of disease, curable or preventable,  
"did we but know how. This goes on  
"with our standing army of physicians,  
"over one hundred thousand strong, on  
"duty day and night. It looks discour-  
"aging, and an eminent physician has  
"himself said that a doctor is like a man  
"blindfolded, striking about with a club,  
"almost as likely to hit his patient as the  
"disease. Our only hope, therefore, must  
"lie in more knowledge of the laws which  
"govern Nature. Without this as well  
"attempt to stay the storm and tides of  
"the ocean with a straw as the currents  
"of disease and the course of Nature  
"with doctors. If we could get before  
"unprejudiced, thoughtful people some  
"idea of the magnitude and scope of  
"medicine and its importance to human  
"and to all animal life, together with  
"some faint conception of the moral  
"forces impelling to the pursuit of those  
"sciences which underlie medicine, in the  
"light of these ideas the vivisection  
"question would wholly disappear."

No one knows better than the physician how narrow the limits are to which our present meager knowledge of things medical confines him. With double our present knowledge our power to save would be far more than doubled. Tied down as the doctor is by these cords of human ignorance as soon as he goes beyond his depth of knowledge, all beyond is necessarily human experimentation. Every failure to cure a man, woman, or child stricken with disease is a case in which human misery and a human life have been placed on

the altar of ignorance and—we might say—immolated to appease the demon of antivivisection. The doctor must, in spite of himself, cause human misery and sacrifice human life by his groping in the dark. To let the patient severely alone is an experiment with that patient, and perhaps in most instances the worst form of experimenting that could be tried. To use medicines on the patient that prove not to cure is equally an experiment. It is only when we give medicines that have been tried and proved successful that we begin to leave the field of experiment and enter that of knowledge. Every doctor knows from his own practice something of the extent to which human experimenting must be carried on. Since the animal world benefits by these human experiments, in that the knowledge thus acquired has given us means to treat their ailments, it is no more than simple justice that they, too, be experimented upon in order to supply knowledge that is of as much benefit to them as to ourselves. There is not a single drug used in this world that was not first tried as an experiment. No doubt uncounted millions of human beings have had to give up their lives as a sacrifice to the experimentors who first tried to find out what the drugs we now use with safety were good for. Back through thousands of generations this kind of vivisectioning has been going on. Modern science is but trying to call a halt in this waste of human life.

The antivivisector demands, however, that the sickening spectacle go on. Forgetting human agony, he has tears and pity only for rats or mice, dogs or cats. He is perfectly satisfied with having them benefit by human suffering, but will not tolerate our benefiting by their suffering. Throughout all future time we must go on permitting ourselves and our fellowmen to be sacrificed for the benefit of the animal world, and that, too, in the most unguarded and wasteful way, if antivivisection laws come in vogue; while by carefully

controlled experiments on animals we might find out, with the smallest possible fraction of suffering, how to put an end to the whole ghastly exhibition.

The demand of science is that the matter be taken out of the domain of blind natural selection and put into the domain of intelligent artificial selection. The vivisector seeks, in the only possible way, to reduce the sum total of sentient suffering on our planet. He works as truly for animals as for men. The antivivisector, if allowed to have his way, would perpetuate the human agonies that the vivisector is seeking to abolish. As, during the Reign of Terror in France, ignorant, misguided people worked in the name of liberty, fraternity and humanity toward establishing a hell on earth, so the antivivisectionist, in the name of "humane" feeling for the lower orders of nature, would practically chain us down to horrors unspeakable.

If they intended to treat physiologists and therapeutics fairly they would never descend to garbling the printed statements of these experimentors for the sake of making a case against them. It seems impossible to get them to understand that modern scientific treatment is wholly unlike the savage empiricism of our fathers. They still believe in the old exploded medical notions of the past. The newer notions of a therapeutics based on physiological knowledge is as incomprehensible to them as to members of the Choctaw tribe. Nor will they try to put themselves in the place of the modern physician so as to see the subject from his standpoint.

To allow those so short-sighted to become the censors of physiologists and pharmacologists in their work, even on the plea of wanting to suppress unnecessary cruelty, would be folly. No such censorship has been shown to be required. Let, therefore, American medical men follow Prof. Foster's advice (in *Popular Science Monthly*, XLIX, p. 785), and "strain every effort to defeat the agitation!"

# Materia Medica and Vivisection

By ROBERT MEADE SMITH, M.D.

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IT hardly seems credible at this late day, when the practice of medicine is so rapidly acquiring the dignity of an exact science, that it should be necessary to emphasize the fact, so thoroughly established in the minds of all capable of forming an opinion, that all real and permanent advance in the art of therapeutics is based upon knowledge acquired through the experimental method; or that we should still have to struggle against those who would obstruct all further progress in this direction.

For two thousand years clinical experience, or the analysis of the progress of disease before and after the use of some form of treatment or medicament, was the sole source of therapeutic knowledge. The use of drugs was purely empirical: if in some individual suffering from a collection of morbid symptoms the use of some remedy appeared to give relief, its employment was recommended in some other case where the train of symptoms appeared to be similar. It is obvious that much valuable knowledge has gradually been acquired in this way. Thus, experience has taught us that in ague quinine will arrest the chill, and so without knowing more, we give quinine in malaria. Such positive results as this are, however, rare; and the administration of a drug to one patient because that drug has apparently done good in some other somewhat similar case is mere groping in the dark. The scientific, and therefore reliable, method of using drugs to combat disease, requires in the first place accurate knowledge of the pathological condition occasioned by, or characterizing the disease; and in the next place, knowledge of some drug whose action is to antagonize that morbid condition. Thus, as is well known, the agonizing pain of angina pectoris is attributable to such increase in vascular tension that the heart can scarcely empty itself: experiments on animals have shown that amyl nitrite re-

duces blood-pressure through action on the walls of the arterioles, by which action their circular muscular fibers are relaxed, the caliber of the blood-vessels is therefore enlarged, and blood-pressure consequently reduced. Thus the philosophical indication was for the employment of amyl nitrite in angina pectoris, and experience shows that such use is almost instantaneous in giving relief. In such an example physiological experiment on animals has enabled us to combat a symptom and has given us a new remedy, but without overcoming the changed structural condition which caused that symptom. In many cases our knowledge of the action of drugs is not yet sufficient to render this possible; and then we look to preventive medicine, which has recently made such advances though the germ theory and serum therapy, for all of which we are indebted to experiments on animals.

In the complex system of man the action of drugs direct and indirect, local and remote, is so confusing that it is a matter of impossibility, from the administration of an unknown drug to man (to say nothing of the danger of such a proceeding), to learn what the action of that drug is. Furthermore, in many diseases the action of drugs is often different from their action in healthy persons, and were we confined to the administration of drugs in sickness the most erroneous notions as to their properties would be reached. Thus in fevers, opium, instead of causing sleep, may cause excitement and delirium.

As in all complicated problems the solution must be reached step by step, in determining the action of drugs the same method must be employed. Man, the most complex of all animals, is hardly then the one to select to reach a conclusion as to the action of a drug, even though it is the knowledge of the action of that drug on man that is desired. That desired end must be approached gradually. The conditions



must be simplified and the progress from simple to complex questions must be made a gradual one. Therefore, resort must be had to the lower animals for the following reasons: In the development of the animal kingdom, of which man is the highest expression, there is a gradual progress from the primitive mass of structureless protoplasm (which possesses the power of development, growth, nutrition, motion and reproduction) to collections of such units, or elementary organisms, in which certain groups are specialized to carry on separately those functions possessed in their entirety by lower forms; but wherever found, whether in the simplest unicellular organism or as a constituent of the tissues of man, protoplasm, the physical basis of life, has always about the same composition and is always possessed of the same attributes.

In studying some new remedy whose action is entirely unknown, the first step is to obtain a general idea of its action on protoplasm, and then gradually pass from the lowest to the highest forms of life. In man and the higher mammals the picture presented of the action of a drug is a complex one from the interaction of the various functions of the body. One function alters another; and that alteration may react upon the first to such a degree and in such a manner that it may become impossible to say whether the result produced is the direct or the indirect action of the drug. In the lower animals the different functions may be prevented from reacting on each other. Thus drugs which also interfere with respiration may have their principal action masked by that interference: in the lower animals this may be prevented by artificial respiration and the use of curare; or different tissues of the body may be separated and the action of the drug studied on them separately, such as the isolated nerve-and-muscle and heart of the frog; or the poison may be prevented from reaching certain parts of the body by ligating the vessels supplying them, and the action of the poisoned and non-poisoned parts compared. Artificial changes, too, in the relations of the various parts of the animal body may be accomplished and

greatly aid in determining the precise action of a drug.

In the lower animals, therefore, for the above reasons, we find the field for the study of the action of remedies; and the question is before us, shall we permit that mode of investigation to be closed to us? No one, we believe, would claim that given a new drug of absolutely unknown character, its action should first be tested on man; and if not on animals, is the progress of pharmacology to stop?

Objection to the experimental study of drugs, on animals, as well as to all forms of vivisection, is usually based on one or both of two grounds. Either such experiments are claimed to be valueless; or if useful, that we have no right to inflict pain on animals for our benefit.

The first argument is simply based on ignorance. To the one classic instance, that of amyl nitrite, already referred to, might be added the entire list of the newer materia medica; and we have only to contrast the *positive* information which we now possess as to the action of so many remedies with the *theories*, supported one day and abandoned the next, which prevailed up to the time of the birth of this method, not so many years ago.

As to the second objection, it is almost a waste of time to attempt to argue with its supporters. Should it be followed to its logical conclusion we should all be vegetarians: we should not kill animals for food nor on account of their destructiveness or dangerousness. But were all the false conceptions true of the suffering physiological experiments entail, even then the end would justify the means.

As Dr. Lauder Brunton has said: "No one would think of blaming the messenger who should apply whip and spur to bring a reprieve and thus save the life of a human being about to die on the scaffold, even although his horse should die under him at the end of the journey. Humane people will give an extra shilling to the cabman in order that they may catch the train which will take them to soothe the dying moments of a friend, without regarding the consequences to the cab-horse."

The picture of the blood-thirsty physiologist gloating over the sufferings of his helpless victim is only too common in the sensational journalism of to-day: with such views no argument is possible. Those who hold them cannot or do not want to see that for the very success of the experiment *all* pain and suffering, even if only as disturbing causes, are avoided as much as possible.

Sometimes, however, we meet an objection presenting, at first sight, an appearance of reason. It is that experiments on animals are misleading because the action of drugs on animals differs from their action on man. As this argument at first seems of some scientific force, it deserves to be closely examined to show its groundlessness. When we find in an animal a tissue or organ whose structure is nearly similar to that of a corresponding one in man, we find that drugs act on that tissue or organ and on its functions in the same way in man and in that animal: and where there are differences in structure, we find differences in action. Thus, tartar emetic, which produces vomiting in man and in dogs, does not have that effect in rabbits or horses, simply because in these animals the structure of the stomach is such that on physical grounds vomiting is impossible. So also, belladonna, which in dogs or man causes great increase in the rapidity of the pulse, in rabbits is apparently without effect, simply because in rabbits the pneumogastric normally exerts but little inhibiting effect upon the heart, while in man and the dog this power of the nerve is pronounced. But in man, as in the dog, the belladonna alkaloid paralyzes the inhibiting fibers of the vagus.

Examples might be multiplied of these apparent differences in action, and indeed some more striking ones than the above might be mentioned; but they all by these very differences help to the better understanding of the action of drugs.

In addition to its value in adding new remedies to our materia medica, and in explaining the action of old ones, vivisection has been of the greatest value in enabling us to apply the result of the experimental

study of the action of drugs in the lower animals to the treatment of poisoning in man.

The idea that one drug might be made to antagonize another is a very old one; that opium and belladonna are partially antagonistic is seen in the difference of their action on the pupil. Experiment has also shown that atropine stimulates while morphine depresses the respiratory center, but the general antagonism is not sufficiently marked to make one of these drugs of very much value in the treatment of poisoning by the other. But vivisection has given us a long and increasing list of drugs whose actions are physiologically antagonistic. Thus, chloral (for whose introduction, indeed, we are indebted to vivisection) in poisonous doses is a powerful depressant of the nerve centers in the medulla oblongata and spinal cord. It paralyzes the respiratory center, so causing respiration to become slower and weaker until it is entirely arrested; it paralyzes the vaso-motor center, thus causing such loss of heat from the dilated blood-vessels that the temperature may fall several degrees; it paralyzes the cardiac ganglia so that the movements of the heart are lessened, and it paralyzes the centers in the spinal cord so that all reflexes disappear. On the other hand, experimentation on animals has shown that strychnine stimulates the respiratory center, so that respiration is quickened and made deeper; strychnine stimulates the vaso-motor centers both in the medulla and in the spinal cord, and strychnine stimulates the motor ganglia in the heart and in the spinal cord. Experiment, therefore, shows that in the lower animals strychnine and chloral are physiologically antagonistic, and clinical experience has shown, in a long list of published cases, that the administration of strychnine to persons poisoned with fatal doses of chloral has in many instances saved life; and that in strychnine poisoning chloral has also proved itself a valuable antidote.

Yet, in spite of these well-substantiated facts, a bill has been introduced in the United States Senate by Senator Gallinger (Senate bill No. 34), with the ostensible

purpose of regulating vivisection in the District of Columbia, but which can be intended for nothing but an entering wedge to prevent all vivisection. Since 1871 the Washington Humane Society has had extreme power relative to the search of private premises on which there is reason to believe animals are being needlessly tortured, with stringent laws which it is the duty of every member of that Society, as well as every peace officer, to enforce with penalties of fine and imprisonment against such cruelty; and yet during this entire period there has never been a single search warrant issued, or a single prosecution instituted, or a single complaint of cruelty made.

Dr. Woodward, the District health officer, has said:

"The proposed law seeks to take from the regularly incorporated medical colleges, universities, and scientific societies the right which they alone now have to authorize experiments on living animals, and to confer such authority in a restricted form on the board of commissioners, a lay organization, of which two men constitute a majority. It seeks to take from the courts the power to decide whether any experi-

ment has or has not been properly conducted, and to limit their authority to the power to determine whether in any given case an experiment was performed according to certain rules and regulations laid down in this bill. It undertakes to do away with the necessity for a warrant for the search of premises on which experiments are conducted, enabling any or all of four inspectors to enter at any time without notice. It seeks to subject the papers of the experimenter to search without warrant, by requiring him to make such reports as the commissioners may direct." . . .

The intention of this bill is thus evidently dishonest: it professes to regulate an abuse while there is no evidence to show that any such need exists, and where there is already ample provision for the punishment of any unnecessary cruelty.

Protest should be made at once to the United States Senate in writing by every physician and pharmacologist. The surgeon, the physician, the physiologist, owe inestimable debts to the experimental method: above all the pharmacologist should see that there must be an absolute arrest of progress in the knowledge of pharmacodynamics, should this bill become a law.

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[Written for MERCK'S ARCHIVES]

## Treatment of Diarrhea

By J. T. MOORE, M.D.

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WHILE not my intention to enter into a discussion of the theories of the various types of diarrhea, either in the infant, child, or adult, a few words may be necessary in order to form a basis for the clinical reports that follow. It is a fact that in the greatest number of diarrheas we have to combat a process of fermentation, particularly in those cases beginning with indigestion from the use of improper food or improper feeding. The surrounding media, especially temperature range, may have much to do with intensifying and prolonging the course of the disease, with specific reference to infants and children.

Many of these cases, if early neglected, pass into an inflammatory condition, as evi-

denced by the symptoms of enterocolitis or cholera infantum. My clinical reports will not cover cases of nervous origin or those produced by sudden chilling, etc.

In that class of diarrheas of a bactericidal character, particularly when produced by indigestion starting in the upper alimentary tract, with consequent fermentation, the products soon find their way from the stomach into the duodenum. Irritation is set up and hyperperistalsis results, this condition serving to sweep the fermenting mass along into the lower portion of the ileum and colon. Here we find the greatest evidence of pathological changes at the autopsy; here take place the most intense fermentative processes, which are



liable to terminate in organic lesion, as enterocolitis, etc.

Could we have charge of every case in its incipency, while the fermentation was confined to the stomach, or even stomach and duodenum, the food could be stopped and a large class of soluble antiseptics and antifermentatives employed, with every hope of a satisfactory result; later, however, when feeding must be resumed, remedies of this class interfere with the action of the digestive juices and expend their force before they reach the seat of intense fermentation. Unfortunately we are not called (on account of the fond mother's idea that a little diarrhea is beneficial while baby is teething) until the mass with its contained bacteria has found its natural resting place in the lower bowel, safely out of reach of soluble medicaments. These are the cases where we are obliged to rely upon antiseptics and astringents that do not yield their medicinal properties until they have reached alkaline media.

Quite an array of drugs have been experimented with in these cases at different times—sodium benzoate, bismuth subnitrate, resorcin, and the salicylates. The latter are supposed to be split up in the digestive tract, the salicylic acid separating from its basic salt. Bismuth subnitrate, on account of its tolerance in large doses, its insolubility, and its antiseptic and astringent properties, has been largely used in this country in such cases of diarrhea as last described.

Recently, in this connection, my attention was called to a new product, tannalbin.<sup>1</sup> As it was claimed to be totally insoluble in acid media, only exercising its therapeutic action in alkaline media, I was led to believe that in it we might find a remedy which would exactly meet the demands in these cases of diarrhea. In my first trials of the combination I looked for no properties other than the astringent and non-irritating, it being an albuminate; hence I combined various antiseptics with my treatment, alternating them with the tannalbin. The first series of cases, however, convinced me that there was an an-

tiseptic action that I had not before perceived from the use of the same drugs; and this led me to test the tannalbin alone. I was astonished to find the clinical result equally as good as that when I had used a combined treatment. I use the word "astonished" advisedly, for I am still unable, from the chemical combination, to understand the theoretical basis for antiseptic action. Leaving theory, however, to theorizers and laboratory investigators, the clinical fact stands unchanged.

From my clinical notes I select a few cases for illustration, choosing not more than one from each class of cases in which I have used tannalbin.

Case I.—Mr. D., suffering from aneurism of ascending aorta, developed symptoms of catarrhal gastritis and enteritis, due to interference with circulation, causing chronic congestion of the mucosa of the whole alimentary tract. The diarrhea was very intractable, and after using every known remedy without being able to improve the circulation more than temporarily, I at last resorted to tannalbin. This was the first remedy from the use of which I was able to relieve the bowel symptoms. By its more or less constant use, due to its astringent action, the excretion was modified to approximately a normal condition. The vomiting was controlled by large doses of bismuth subnitrate, which, though given before, had exerted little or no effect upon the bowels. The tannalbin was given in 15-grn. doses every three hours or longer as required. Death resulted three months later from rupture of the sac.

During the spring and summer of 1899, I used tannalbin in numerous cases, mostly of digestive and bacterial types.

Case II.—Mr. S. consulted me for symptoms of acute irritation of stomach and bowels, vomiting, and diarrhea, with considerable griping, evidently an attack precipitated from acute indigestion. I gave bismuth subnitrate for the vomiting, and tannalbin in 15-grn. doses, repeated every three hours for three doses, with directions to repeat after each defection thereafter until well. Reported that three doses of each did the work and he had no further trouble. I may say that in this case the bowels were well cleansed before treatment began.

Case III was of bilious origin. Such cases are not usually of long duration, but this case was complicated with malarial infection. Three 10-grn. doses of tannalbin checked the bowel trouble and a few doses of quinine sufficed for the malarial symptoms.

Case IV.—Infant of four months; history of diarrhea for two days, when vomiting began sud-

<sup>1</sup>Tannin Albuminate, Exsiccated, Knoll.

denly, with watery discharges from bowels every half hour; child pale and listless, eyes somewhat sunken. The diarrhea of two days was probably due to direct irritation from undigested substances passing through the intestines; the change in symptoms marked the time when bactericidal action began and seemed verging upon inflammatory action. Here was a case where all authorities deprecate the use of astringents, particularly those of vegetable origin. I believed the condition of fermentation had largely to do with the symptoms. My past experience with tannalbin, both as astringent and antiseptic, decided my course in this case. I prescribed 5-grn. doses every three hours for three doses, alternated with 5 grn. of bismuth subnitrate and  $\frac{1}{2}$  grn. of salol. The time between doses was extended to four, five, and six hours, as the symptoms improved. The next day the child was very much improved, and the succeeding day treatment was discontinued. There was no vomiting and discharges were practically normal.

In infectious diseases I have found no remedy to give greater satisfaction in bowel complications than tannalbin.

In several cases of typhoid fever, characterized by excessive discharges, tannalbin in every case controlled action of the bowels without producing any evidence of the irritation so frequently attending the administration of vegetable astringents; the attending tympanitis was at the same time favorably modified. In the diarrhea of phthisis I have had but two opportunities to use tannalbin; in both cases the result was all that could be hoped for from any medication. The dose was 15 grn. every three hours, or from two to three times a day, as indicated.

The following cases were reported to me by my confrère, Dr. F. A. Knights:

Case I.—J. H. Carpenter, aged about forty; history of chronic diarrhea for five years, during most of which time he was under some treatment. The discharges began every day about 4 or 5 P. M., following each other in rapid succession until three or more had passed. Tannalbin, 5 grn. every four hours, was prescribed; in three days stools were less fluid and more controllable. Treatment continued for a week, when patient reported bowels normal.

Case II.—Miss H., last stage of phthisis; profuse diarrhea; opium in  $\frac{1}{4}$ -grn. doses was used, but the constitutional effect upon the already weakened patient was not good. Tannalbin in 5- to 10-grn. doses three times a day controlled bowels perfectly, without any systemic effect. I finally gave her the drug in bulk, which she

took in 5- to 10-grn. doses, measured on point of knife as required. Bowels were thus controlled up to time of death.

Case III.—Phthical diarrhea, similar to above. Received 5 grn. of tannalbin every four hours, as needed. Result excellent.

Case IV.—Profuse, protracted diarrhea, following a relieved fecal impaction. Bowels were controlled as desired by increasing or decreasing dose of tannalbin. Dose 3 to 10 grn. two to four times a day, as indicated.

I (Dr. M.) treated two cases of chronic mucocolitis. Both were marked by the passage of considerable masses of mucus, together with long strings and flakes of the same material, resembling casts from the mucous lining of the bowels. One case was troubled also with gas in the colon.

Case I.—Patient brought bottle containing mucus and casts for inspection. I placed him on 15-grn. doses of tannalbin three times per day, and for the first two weeks of treatment ordered also an enema, once a day, of 1 dr. of powdered alum in 1 quart of warm water, to be retained a few minutes, the patient in a recumbent posture, hips elevated. After two weeks this was stopped and tannalbin alone continued for four weeks longer. It is now some months since treatment was abandoned and patient remains perfectly well. I would say that I occasionally ordered a laxative to overcome tendency to constipation produced by use of the tannalbin.

Case II.—Mrs. A. H. S.; history similar to the preceding case; mucus and flakes in considerable masses had been passed the previous evening, there being but little fecal matter. There was a history also of some constipation. In all probability the condition was produced by the retention of fecal masses in the colon. I placed the patient first upon cascarn compound tablets (P. D. & Co.) until the constipation was overcome, then gave tannalbin for the catarrhal condition causing mucous discharges. In this case I continued the cascarn compound as required to procure natural movement of the bowels. No other treatment was used in this case; after four weeks all symptoms had disappeared and an unpleasant bloating was also completely relieved.

In view of this clinical experience, tannalbin seems to me to be as near a specific in selected cases of diarrhea as quinine is for malaria, or mercury or the iodides for syphilis. I trust that this paper may prove of some service to physicians in cases similar to those described, and that more light will be thrown on this matter by other clinical reports.

# Methylene Blue in Malaria

By J. W. P. SMITHWICK, M.D., La Grange, N. C.

(Read before the Seaboard Medical Association, Newport News, Va., January 11 and 12, 1900.)

THE discovery of cinchona and its alkaloids was one of the greatest boons to the human race. This remedy has been of more service in the treatment of the various forms of malaria than all the known drugs of the present day, being virtually a specific, in all that term implies, if properly administered. Yet, being a specific and a drug that has done an immense amount of good, its administration gives rise to unpleasant symptoms in certain individuals, so that they in some instances think the remedy worse than the disease. It is claimed by many observing practitioners that cinchona will produce hematuria if administered under certain circumstances. The tinnitus caused by it is a very unpleasant and distressing symptom to some individuals, and in a proportion of all the people who take this drug there are nervous manifestations of varying degree, some being unable to take it at all. One individual, to my knowledge, cannot take the small amount of  $\frac{1}{2}$  grn. a day without having a severe attack of urticaria, accompanied by excessive nervousness.

We all, probably, have had more or less experience with these untoward effects of quinine. In some cases bromides are given with good result, while in others they seem to do little or no good.

These idiosyncrasies have caused investigators to look for a succedaneum to quinine. Numerous remedies have been experimented with and laid aside as valueless compared with quinine, though many of them possess antiperiodic qualities, usually to a small extent. Within the last few years several physicians have experimented with medicinal methylene blue, and while they do not all agree to its being a perfect substitute for quinine, they do admit its usefulness and that it has very decided anti-malarial properties.

Chemically, medicinal methylene blue is the simple hydrochlorate of tetramethyl-

thionine, free from arsenic and zinc. It occurs generally as small, indigo-colored, scaly crystals, with a bronze-like luster. It is soluble in water, less freely in alcohol, producing a deep blue solution. It is important to note the distinction between medicinal methylene blue and methylene blue dye, which is the zinc chloride double-salt of tetramethylthionine, containing arsenic as an impurity, and is employed only as a dye or stain, not being eligible in any capacity for medicinal use. Nor must the medicinal substance be confounded with the dye methyl blue, used also to some extent as a topical application in diphtheria.

Medicinal methylene blue is usually administered in doses of 2 grn. six times daily, and on account of its peculiar taste I have found it better to give it in the form of capsules or pills. About an hour after its administration it appears in the urine, to which it imparts an intensely blue color. It increases the amount of urine passed, and for that quality is a valuable consideration when there is a tendency to the hematuric complication of malaria.

In this drug I have found a very quick and efficient remedy for all forms of malaria, producing none of the unpleasant effects of quinine.

Dr. Moncorvo<sup>1</sup> states that it appears certain that methylene blue is able to destroy the hematazoön, though possessing no advantage over quinine in this respect. He used methylene blue in thirty-six cases of malaria occurring in children from twenty-three days to fourteen years of age; of this number, ten patients were cured, and three improved. He then used the remedy on a larger scale, in daily amounts of 0.2 to 0.4 Gm. (3 to 6 grn.) in divided doses. He observed none of the disagreeable effects reported by various authors and the drug was readily administered.

Rosin<sup>2</sup> made parallel experiments with

<sup>1</sup>*Pediatrics*, VIII, No. 6.

<sup>2</sup>*Deut. med. Woch.*, 1898.



regard to the antiparasitic qualities possessed relatively by quinine and methylene blue, the test being employed directly upon the blood. From these tests it appeared that the blue was much more rapid in its action as a parasiticide.

Guttman and Ehrlich have employed methylene blue in malarial fever in daily doses of 8 grn., getting prompt results.

These observations are of decided value and agree with my own in a series of fifty cases of different types of malaria, in all of which I administered methylene blue—not, however, without the proper adjuvants. These cases were not selected ones, but for a certain period every person whose blood showed the malarial parasite upon microscopical examination was given methylene blue. In all cases the alimentary canal was cleansed with calomel and soda. All recovered except seven, and three of these refused to take methylene blue after the first two or three doses; the four others were in a very bad physical condition, and died in a short while from organic disease.

TABLE OF RESULTS

No.	Age	Type	Duration	Complications	Result
22	12	Tertian	10 days	None	Recovery
23	40	Tertian	3 weeks	None	Recovered in 3 days
24	26	Quotidian	2 days	None	Recovery
25	68	Tertian	2 weeks	Very irritable stomach	Refused medicine on account of nausea
26	17	Quotidian	4 days	None	Recovery
27	58	Tertian	12 days	Mitral regurgitation	Medicine seemed ineffective after 1 week's trial
28	35	Hemorrhagic	1 day	Remittent fever	Recovery
29	3	Quotidian	2 days	None	Recovery
30	5	Quotidian	3 days	None	Recovery
31	33	Quotidian	6 days	None	Recovery
32	23	Tertian	10 days	None	Recovery
33	18	Quotidian	3 days	None	Recovery
34	30	Quotidian	4 days	None	Recovery
35	48	Tertian	11 days	None	Refused medicine on account of taste
36	22	Quotidian	3 days	None	Recovery
37	13	Quotidian	4 days	None	Recovery
38	37	Estivo-autumnal	2 weeks	None	Recovery in 5 days
39	28	Double quotidian	2 days	None	Recovery
40	23	Quotidian	5 days	None	Recovery
41	78	Tertian	6 days	None	Recovery
42	64	Quartan	3 weeks	Chronic diarrhea	Treatment ineffective, discontinued after 1 week's trial. Death 3 weeks later
43	33	Quotidian	1 week	None	Recovery
44	48	Quotidian	6 days	None	Recovery
45	31	Hemorrhagic	1 day	None	Recovery
46	18	Tertian	11 days	None	Medicine discontinued after 3 doses
47	39	Estivo-autumnal	30 days	None	Recovery in 10 days
48	7	Quotidian	4 days	None	Recovery
49	26	Tertian	3 weeks	Lactation and tendency to diarrhea	Recovery in 4 days
50	40	Quotidian	6 days	4th pregnancy, 8th mo.	Recovery in 2 days
1	28	Tertian	1 week	None	Recovery
2	35	Quotidian	3 days	None	Recovery
3	16	Quotidian	4 days	None	Recovery
4	23	Tertian	8 days	None	Recovery, but chills returned on 21st day. Treatment again begun. Recovered
5	57	Quartan	2 weeks	Bright's disease. Very intemperate	Died 2 months after taking treatment one week, without benefit. Quinine had no effect, though blood showed plasmodium
6	32	Estivo-autumnal	3 weeks	None	Recovered in 1 week. Tonics administered
7	37	Tertian	1 week	None	Recovery
8	24	Hemorrhagic	Few hrs.	None	Recovery
9	63	Tertian	3 weeks	Cirrhosis of liver	No benefit from 2 weeks' treatment. Died 7 weeks later
10	8	Quotidian	3 days	None	Recovery
11	22	Quotidian	4 days	None	Recovery
12	30	Estivo-autumnal	2 months	Malarial cachexia very marked	Cured by 3 wks' treatment. Iron and arsenic given
13	46	Quotidian	12 days	None	Cured
14	22	Quotidian	4 days	None	Recovery
15	44	Tertian	7 days	Very sallow	Recovery in 3 days
16	19	Quotidian	5 days	None	Recovery
17	74	Quotidian	2 days	Very feeble	Recovered in 2 days
18	24	Estivo-autumnal	3 weeks	Very anemic	Recovered in 8 days
19	6	Quotidian	3 days	None	Recovery
20	36	Quotidian	1 week	None	Refused medicine
21	21	Quotidian	5 days	None	Recovery

In the above series there were 24 cases of quotidian, 14 of tertian, 3 of quartan, 5 of estivo-autumnal, 3 of hemorrhagic, and 1 of double quotidian malarial fever, all but 4 of which recovered, when the methylene blue was taken according to directions. There was one relapse, which finally made a good recovery. Of the number that died, No. 5 of the table, after taking methylene blue one week without appreciable benefit, was given quinine, which also seemed to have no effect, though the blood showed the malarial parasite upon every examination. In this case the methylene blue caused a freer action of the kidneys, which was beneficial. No. 9, who had chills every third day for three weeks, got no relief after two weeks' administration. He died seven weeks later. No. 27 had a very distinct mitral regurgitant murmur and was very feeble at the time the paroxysms made their appearance, the methylene blue manifesting no therapeutic effect. No. 42 was

given one week's treatment without benefit. She was in a very bad physical condition and died three weeks later. The three patients who refused to take the medicine would have recovered, I believe, had they followed directions.

In the hemorrhagic type methylene blue seemed to be a remedy with a twofold effect—that of a parasiticide and diuretic. After its administration was begun the urine cleared up and there was no return of the paroxysm.

In all the cases treatment was continued ten days after the last chill. In only one instance was there a relapse, and that responded to treatment, which is quite a contrast to what is often experienced with quinine administered in the usual manner.

From the reports of others and my own observations, I deduce the following conclusions:

1. Methylene blue is a perfect succedaneum for quinine, and may be given whenever the latter drug is indicated in the treatment of malaria of every form and under all conditions, with the same confidence that has always attended the administration of quinine.

2. Patients need not be selected on account of idiosyncrasies, as no bad effects ever follow the use of methylene blue, if given intelligently.

3. It is the remedy to use in malaria with hematuric complications, as it acts in a twofold manner.

4. It is the remedy to be given in malaria occurring during the pregnant period, as it has no oxytocic effect and will cause a freer action of the kidneys, which is also beneficial.

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**Sulphuric Acid** has been employed by Dr. H. Vettesen,<sup>1</sup> physician-in-chief of the city hospital of Christiania, Norway, in the treatment of six cases of Basedow's disease. Ten drops of the medicinal acid were given three times a day, on the idea advanced by some authors that mineral acids exercise a tonic action on the vaso-motor nerves. One of his patients was cured after a month of treatment, three were more or less improved, and but two derived no benefit, being cases of long standing.

## Chemical Antipyretics in Fevers

IN A PAPER read before the Nebraska State Medical Society at its last meeting Dr. F. A. Long,<sup>1</sup> of Madison, Neb., after referring to the Brand method of treating fevers and the difficulties in the way of its adoption by many physicians, tells of his continuously successful results with acetanilid and other chemical antipyretics. The Brand method cannot be properly carried out except among hospital patients and well-to-do people, who can afford trained nurses and great care, and he wonders whether or not this care itself has not a good deal to do with the reported successes in the use of this method. There is no doubt, he says, but that at the present time a large majority of general practitioners use chemical antipyretics with results satisfactory to themselves and their patients, and he protests against the implied charge of ignorance or criminality in such practice coming from hospital doctors. Those who, for some reason, oppose antipyretics say that their use is far from favorable on the course of the disease, but they never say how it is unfavorable; they speak of depression and tendency to collapse as due to the use of antipyretics, while unconsciously indicating that the Brand method has to be guarded against by hot toddy, hot water bottles, and other means that indicate that it, too, is subject to the same dangers.

The author declares that the excessive sweating, cardiac depression, and tendency to collapse charged against the chemical remedies, can be wholly overcome by the same treatment found necessary to tide the patient over similar attacks from the hydropathic treatment.

In every line of treatment of fever the same dangers are present and the same symptoms have to be overcome. With Anders, he holds that internal antipyretics are allowable "if properly administered," and their proper administration consists in guarding the heart with stimulants. To reduce fever artificially is to depress, whatever the means employed, and to guard against such depression is the same in one

<sup>1</sup>Bul. de l'Académie de Méd., XLII, No. 42, p. 581.

<sup>1</sup>Gaillard's Med. Jour., LXXII, p. 804.

as in another method. The profession will bear out the assertion that the bad effects following the use of internal antipyretics have been grossly exaggerated, if the drug is administered according to the formula given by one of the old masters for mixing colors—with brains! The author has used internal antipyretics to control high temperature extensively for eight or ten years without any noticeable ill-effects following the use of the drug.

In a case of typhoid fever in an adult, if the evening temperature runs above  $102.5^{\circ}$ , and it usually does, acetanilid in 3 to 5-grn. doses, according to the size and temperament of the patient, is given hourly till perspiration appears, or the body becomes noticeably cooler, without perspiration, from about noon to midnight, the period of highest fever. It is directed that, in case unusual depression follows, a cup of strong coffee or tea shall be administered and hot irons applied to the feet. Rarely, though, in his experience is such emergency treatment called for. Alcoholic stimulants are rarely advised. The reduction of temperature and the induction of free diaphoresis are usually prompt, and generally accompanied by relief from the headache, delirium, or dullness, and a feeling of comparative well-being, so decided as to usually elicit an expression from the patient to that effect. The patient who has been wakeful or delirious will fall into a tranquil sleep, awakening therefrom refreshed.

The author calls attention to the fact that some of his acquaintances claim to have had their best results with phenacetin, but his favorite has always been acetanilid, as it has proved very satisfactory.

It is claimed for the Brand method that, after six or eight baths, the headache, delirium, and stupor cease, the patient falls into a natural sleep, from which he is easily aroused, often with a bright expression and a clear mind; that tremor and subsultus are rare; and that the tongue clears off and become moist, anorexia becomes less marked, tympanites is rarely seen, and troublesome diarrhea is rare.

Almost, if not quite, as much can be said for the internal antipyretics, if at the same

time small doses of calomel or other cholagogues and laxatives, if needed, are given. The great emunctories—the skin, the kidneys, the liver, and the intestines—need to be kept active.

It is known that the typho-toxins are eliminated in part by the kidneys, and it is reasonable to believe that they may also be eliminated by the skin, the author believing that the profuse sweating following the administration of internal antipyretics is directly beneficial in this way. Anders says: "Internal antipyretics soothe and moderate the nervous symptoms and act more or less potently as antiseptics." Whatever may be the truth about the so-called antiseptic treatment of typhoid fever, it is certain that antiseptics exert an inhibitory influence on fermentation of gastric and intestinal contents, and that in ulcerated and catarrhal lesions of the bowels intestinal antiseptics are most valuable. The antiseptic properties of acetanilid and phenacetin are well established, and by such action, in addition to the antipyretic effects, they also inhibit fermentation, to which in great measure tympany and diarrhea are due, and produce a favorable influence on typhoidal ulcers when developed.

The author is certain that the mortality of typhoid fever, where internal antipyretics are used, is due, not directly to "excessive sweating, cardiac depression, and collapse," but to the other more ordinary causes which obtain with any method of treatment—hemorrhage, perforative peritonitis, etc. Neither is the course of the disease prolonged, for it is rare that the upward tendency of the fever continues beyond from fourteen to twenty days, at least in North Nebraska, and the patients are usually up at the end of four weeks, and they recover strength rapidly. He asserts that in all the essential fevers internal antipyretics may be used to good advantage without endangering the patient. In the high temperature of pneumonia, accompanied by restlessness and rapid breathing, prompt relief is afforded by one or two doses of acetanilid or phenacetin. The irritating cough, so frequently an accompaniment of the high temperature, usually



subsides with the fall of temperature. Stimulants are, however, called for if antipyretics are given in pneumonia, except in the earliest stage. Acetanilid, he claims, is the most eligible drug that can be given, after thoroughly emptying the gastro-intestinal tract, to prevent the recurrence in children of the convulsions due to high temperature. In inflammatory rheumatism, acetanilid or phenacetin may be given with sodium salicylate, and either will relieve the pains as promptly as it reduces the temperature. Nothing in the author's hands has ever given the satisfactory results in inflammatory rheumatism that a special tablet has, containing  $2\frac{1}{2}$  grn. each of acetanilid and sodium salicylate,  $\frac{1}{4}$  grn. of caffeine, and  $\frac{1}{12}$  grn. podophyllin. Two tablets are given hourly till the temperature is reduced, and the pain relieved and two every three hours afterward for several days after the disappearance of the painful manifestations of the disease.

### The Treatment of Diphtheria

DR. A. J. TURNER,<sup>1</sup> of the Children's Hospital, of Brisbane, Australia, read a paper with the above title at a recent meeting of the Inter-Colonial Medical Congress, held in Brisbane. It contains tabulated summaries of the reports of the treatment of cases of diphtheria under his superintendence for the last ten years. The majority of the cases came under his own personal observation and all the results are taken from carefully kept records of the hospital. The first five and a half years he calls the preantitoxin period, after that the antitoxin period. In order to understand the full significance of the report, it is necessary to bear in mind that all the cases were first diagnosed clinically by the symptoms, and then those of the antitoxin period were tested bacteriologically, those not showing the presence of the Klebs-Loeffler bacillus being excluded. It is important to remember this, since some are under the impression that all such cases are diagnosed microscopically only. Here the fact is just the reverse. Only those

which clinicians called diphtheria were chosen, and then the pseudo-diphtheritic, mild cases were excluded by microscopic diagnosis. This, instead of favoring the antitoxin statistics, made the test much more severe than for the preantitoxin. Cases not diphtheritic were included in the early cases, while the same class of cases were excluded in the later. In the early cases of the antitoxin period overdosing was feared, and so very small doses were used.

The following table gives the results obtained under both systems of treatment, and the author positively asserts that not a particle more care was bestowed upon those of the antitoxin period than had been bestowed upon those of the preantitoxin period. Nearly half the cases were so severe that they required intubation or tracheotomy.

CASES OF DIPHTHERIA TREATED IN THE CHILDREN'S HOSPITAL, BRISBANE

Preantitoxin Period	Admissions	Deaths	Mortality
July, 1889, to June, 1891 (2 years).....	73	34	46.6%
July, 1891, to June, 1893 (2 years).....	114	48	42.1 "
July, 1893, to January, 1895 (18 months)...	116	46	39.7 "
Total.....	303	128	42.2%

Antitoxin Period	Admissions	Deaths	Mortality
Small doses:			
January, 1895, to November, 1895 (11 months).....	40	10	25.0%
Large doses:			
November, 1895, to September, 1896 (10 months).....	43	5	11.6 "
September, 1896, to December, 1897 (15 months).....	83	8	9.8 "
January to December, 1898 (12 months)...	45	7	15.6 "
January to August, 1899 (8 months)....	106	10	9.4 "
Total.....	317	40	12.6%

This showing is quite remarkable and well illustrates the great mortality of the old method as compared with the small mortality of the new. Whereas, formerly they lost 42.2 per cent. of their cases, since the introduction of antitoxin they have only lost 12.6 per cent. When the doses given were small, the mortality was about double that of later dates, although a great deal lower than when none at all was given.

As the opponents of antitoxin claim that the diphtheria cases may have been of a milder type during the antitoxin period than

<sup>1</sup>*British Med. Jour.*, No. 2035, p. 1788.

they were during the preantitoxin period, the author has anticipated such an objection by tabulating all the laryngeal cases of both periods by themselves.

LARYNGEAL CASES

Preantitoxin Period			
	Cases	Deaths	Mortality
July, 1891, to January, 1895*.....	147	87	59.2%
Antitoxin Period			
Small doses:			
January, 1895, to November, 1895.....	22	9	40.9%
Large doses:			
November, 1895, to September, 1896...	30	4	13.3 "
September, 1896, to December, 1897...	37	7	18.9 "
January to December, 1898.....	20	6	30.0 "
January to August, 1899.....	68	7	10.3 "
Total.....	177	33	18.6%

\*Record incomplete before July, 1891.

These figures negative the claims of the opposition, as in the worst cases the showing is much better during the antitoxin period than it was before. The reduction is from the per cent. of 59.2 to that of 18.6. In the preantitoxin period about 1 laryngeal case in 12 survived without operation. The following table shows the successful treatment with antitoxin:

LARYNGEAL CASES

Preantitoxin Period			
	Cases	Recovered without Operation	Proportion
July, 1891, to January, 1895.....	147	12	8.4%
Antitoxin Period			
Small doses:			
January, 1895, to November, 1895.....	22	3	13.6%
Large doses:			
November, 1895, to September, 1896...	30	12	40.0 "
September, 1896, to December, 1897...	37	12	32.2 "
January to December, 1898.....	20	8	40.0 "
January to August, 1899.....	68	33	48.5 "
Total.....	177	68	38.4%

The total results may be conveniently stated as follows: Of 100 cases of diphtheria with affection of the larynx treated in the hospital in the preantitoxin period, 8 recovered without operative interference, 33 recovered after either intubation or tracheotomy, and 59 died. Of 100 similar cases treated with antitoxin in sufficiently large doses, as many as 40 recovered without

operative interference, another 45 after operation, and only 15 died.

OPERATION CASES (INTUBATION OR TRACHEOTOMY OR BOTH)

Preantitoxin Period			
	Operation Cases.	Deaths	Mortality
July, 1889, to June, 1891 (2 years) .....	42	28	66.7%
July, 1891, to June, 1893 (2 years).....	60	41	68.3 "
July, 1893, to January, 1895 (18 months)	64	40	62.5 "
Total.....	166	109	65.7%
Antitoxin Period			
Small doses:			
January, 1895, to November, 1895 (11 months).....	19	9	47.4%
Large doses:			
November, 1895, to September, 1896 (10 months).....	18	4	22.2 "
September, 1896, to December, 1897 (15 months).....	25	7	28.0 "
January to December, 1898 (12 months).....	12	4	33.3 "
January to August, 1899 (8 months)...	35	7	20.0 "
Total.....	109	31	28.4%

The next table shows the difference in the mortality of all the diphtheria cases admitted under the old and new methods of treatment at each year of life:

MORTALITY OF ALL CASES OF DIPHTHERIA AT EACH YEAR OF LIFE BEFORE AND AFTER THE INTRODUCTION OF ANTITOXIN

Age Last Birthday	Preantitoxin Period			Antitoxin Period		
	Cases	Deaths	Mortality	Cases	Deaths	Mortality
Under 1 year .....	11	9	81.8%	7	2	28.6%
1 year.....	44	32	72.7 "	35	10	28.6 "
2 years.....	56	37	66.1 "	46	10	20.8 "
3 ".....	44	49	111.4 "	44	6	13.6 "
4 ".....	53	14	26.4 "	47	3	6.0 "
5 ".....	38	9	23.7 "	54	4	7.4 "
6 ".....	23	10	43.5 "	42	4	9.5 "
7 ".....	16	5	31.3 "	19	1	5.3 "
8 ".....	6	1	16.7 "	6	..	0.0 "
9 ".....	7	..	0.0 "	6	..	0.0 "
10 ".....	..	..	0.0 "	..	..	0.0 "
11 ".....	1	1	100.0 "	..	..	0.0 "
12 ".....	3	..	0.0 "	..	..	0.0 "
13 ".....	1	1	100.0 "	..	..	0.0 "
Total.....	303	128	42.2%	317	40	12.6%

The decrease in mortality is striking at all ages, and is particularly well marked during the first two years of life, which had under old methods of treatment such a fearful death-rate.

By classifying all the cases during the antitoxin period in relation to the day of the illness in which antitoxin was administered, a most important lesson appears. It

shows that the earlier the treatment the more certain the success achieved.

	Cases	Deaths	Mortality
Treatment commenced on 1st day .....	7	1	
" " " 2d " .....	39	6	
" " " 3d " .....	50	6	
" " " 4th " .....	51	4	
Total .....	147	12	8.2%
" " on 5th day or later .....	131	22	16.8 "
Cases of uncertain duration .....	39	6	15.4 "

The two fatal cases in which antitoxin was administered on the second day were proved to have died of pneumonia. Of the six deaths among those treated in the third day, four were due to pneumonia, one occurred in the period when small doses were administered, and one was an infant of 18 months, that was moribund from toxemia when admitted. It is the only case in the entire experience of the hospital where death occurred from diphtheria alone and uncomplicated treated within three days of the commencement of the attack. So certain is the author of his results that he asserts that if patients and medical men do their duty no child should now die of uncomplicated diphtheria. They may die of pneumonia in spite of the treatment, diphtheria may be engrafted on a tonsillitis and be overlooked and laryngeal cases without visible membrane may not be diagnosed in time; but such cases aside, with sufficiently early treatment he believes there would be no deaths. To overcome the non-membranous laryngeal cases he would advise the use of full doses of antitoxin.

**Dr. M. J. Martin**, of St. Mark's, Kan., writes that he had under treatment a young lady, seventeen years old, very delicate, who had never menstruated. She had doctored for a long while, taking medicine constantly, until her stomach and constitution became weaker instead of stronger, and her stomach turned against all kinds of medicine. Her face was covered with pimples. He prescribed ichthalbin, 1 tablet three times a day before meals, and applied ichthyol ointment to the face once a day. After three weeks her menses appeared, her face had fewer eruptions, and she finally regained good health.

## Modern Views of Gout

GOUT and the modern views as to its causation and treatment was the subject of a recent paper by Dr. A. P. Luff,<sup>1</sup> read at the West Kent Medico-Chirurgical Society. He showed that in this disease the uric acid exists in the blood not as acid, but as sodium quadriurate; that this changes into the gelatinous biurate, and finally into crystalline sodium biurate. The discovery of these facts has altered our views of what should be correct treatment. By being able to delay the conversion of the gelatinous biurate into the crystalline form, we can aid its elimination and modify or prevent attacks. The author holds that the doctrine of a "uricacidemia" is based on pure hypothesis and has no conclusive experimental data on which to rest. The gouty paroxysm is probably due to precipitation of crystalline sodium biurate in the implicated tissues, where it causes irritation and inflammation. In order to start this inflammation, the deposit must be sudden and fairly copious. If it is slow and not too copious, no inflammation results.

The author holds that it is a mistake to imagine that there is a diminished alkalinity of the blood in gout or that the rise or fall of the amount of alkalinity controls the deposit of sodium biurate. Actual blood tests show that the alkalinity is greater in gouty people than in the non-gouty, and in studying the properties of gelatinous sodium biurate it has been found that increased alkalinity with sodium carbonate or bicarbonate hastens the production from it of the crystalline biurate, and therefore actually is one of the causative factors in the production of gout, because the increased alkalinity of blood is due to sodium carbonate or bicarbonate. Potassium bicarbonate delays the precipitation of crystalline biurate. This explains why alkaline treatment with potassium salts is beneficial and why green vegetables rich in potassium help in the removal of gout. In treating gouty patients the author states that the following objects should be kept in view:

1. In cases of acute gout the gouty par-

<sup>1</sup> *Lancet*, No. 3977, p. 1361.



oxysm must be treated and the severe pain must be relieved. This can be effected by the free administration of colchicum and potassium citrate and by a mild blue pill and Epsom salts purge. The painful joint or joints should be packed with wool saturated with a warm alkaline and anodyne lotion.

2. The elimination of uric acid should be promoted. For this purpose free diuresis should be encouraged by the administration of plenty of water and by the employment of potassium citrate, or potassium bicarbonate, or similar salts that exercise a diuretic effect and which at the same time diminish the acidity of the urine. For the same purpose green vegetable food should be freely taken.

3. The excessive formation of uric acid should be checked. This object is mainly attained by a carefully selected dietary. When once the acute attack of gout has subsided there is no necessity for excluding butcher's meat from the dietary of the gouty. On the contrary, it is better for most patients that it should be moderately partaken of. Although a mixed diet is best suited to gouty patients, it is important that the dietary should be a simple one, and it is especially desirable to avoid at any one meal much mixing of proteids and carbohydrates. The stomach of a gouty patient, unlike that of a healthy individual, is not well able to digest half-a-dozen different kinds of food at the same time. The metabolism of the liver should also be promoted by the administration of guaiacum, by an occasional mild cholagogue pill, and by keeping the bowels open.

4. Attention should be paid to general hygiene. It is important to insist on suitable exercise being taken as soon as the patient is fit for it. It is interesting to note that the investigations of Dr. R. Caton into the treatment practiced by the ancients at the temples of Asklepios demonstrate that the priests very successfully treated gout by prescribing plain and simple diet, the use of water internally and externally, massage, active gymnastic exercise, and exercise in the open air. Golf and cycling are two excellent exercises for the gouty.

5. Enlarged joints and other gouty de-

posits should be treated with a view to the removal of the deposited sodium biurate. This important branch of the treatment of the gouty can be carried out in various ways. Massage and muscular movements increase the flow of lymph in the lymph channels and so tend to promote removal of uratic deposits and to increase the metabolism of the joints. This treatment may with great advantage be combined with the passage of the constant current through, and the employment of cataphoresis to, the affected joints and tissues.

## Treatment of Acute Dysentery

ACUTE dysentery is the subject of a paper by André Martin,<sup>1</sup> surgeon-major of the first rank in the French army. The treatment of this important disease, which is often epidemic in various climates and regions of France and other countries, the author states has been too often empirical, unmethodical, and not in accord with our present knowledge. Bouchard has said that "in typhoid fever the antiseptic theory is admissible, and, in certain cases, practically realizable." This seems to be more applicable to dysentery than to typhoid. The object of treatment ought to be to destroy or eliminate the toxins and render the digestive tract aseptic. Recent researches seem to demonstrate that iodoform and charcoal, bismuth salicylate, beta-naphthol and its compounds, all formerly regarded by Bouchard as absolutely antiseptic, are not certainly so, and that they are inferior in this respect to purgative medication and milk régime. The experiments of A. Gilbert and S. A. Dominici show that a purgative of 4 dr. each of sodium sulphate and magnesium sulphate reduces the proportion of bacteria in the alimentary tract from 12 billion to 1 billion in a period of twenty-four hours.

Grasset and Robin declare that "purgatives are the best intestinal antiseptics. Certain sulpho-compounds resulting from intestinal putrefaction and eliminated by the urine are not reduced when intestinal antiseptics are given, but are so reduced un-

<sup>1</sup>*Bul. gén. de Thérap.*, 1900, No. 22.

der purgatives." These authors have also shown that a milk diet reduced the bacteria of the intestinal tract from 12 billion to 164 million—i. e., seventy-one times—but it is accomplished more slowly. Purgatives and a milk diet, therefore, insure intestinal antiseptics, and ought to form the basis of a rational treatment of dysentery, being necessary and sufficient for it.

Other indications are directed not to the disease, but to the patient, to the lessening of his pain, insomnia, and occasional profuse and weakening hemorrhages.

The writer prefers equal parts of sodium sulphate and magnesium sulphate as the purgative, one of whose functions of importance is to remove rapidly from the intestinal tract the toxins as fast as formed. He is opposed to ipecac as an adjuvant.

The milk régime he regards as being as rigorously necessary as for ulcer of the stomach, in which case it is insisted on by Cruveilhier. Its ready assimilation and nutritive value are added to its antiseptic effect. For those who dislike milk, he refuses beef bouillon, and gives instead decoction of fresh vegetables, whitened with the yolk of an egg and thickened by tapioca or other grain-stuff. These patients require a longer time for recovery than those on the milk régime.

The auxiliary antiseptics are enumerated but not emphasized.

For relief of pain, opium seems indicated. The tenesmus, accompanying numerous small movements, consisting often of nothing more than a bloody mucus, gives genuine distress. This tenesmus is relieved when the stools become, by impregnation with bile, abundant, aqueous, and smooth. To this end opium is an obstacle; instead of relieving, it increases the distress, the high authority of Segond to the contrary, continues the author. Segond's pills contained calomel and ipecac as well as opium, the added ingredients exciting the biliary secretion and overcoming the paralysis of the intestinal glands. Opium should not be admitted in the treatment of dysentery, but a hypodermic of morphine, of  $\frac{1}{4}$  to  $\frac{1}{8}$  grn., to give sleep when greatly needed, is not contrain-

dicated because it does not check the intestinal secretions nor increase the tenesmus, as does crude opium. But the writer can obtain the same results from the hypodermic injection of 1 per cent. carbolic acid, which thus used is both a nervine and analgesic without effect on intestinal secretions, admitting of repetition every five or six hours, and certainly relieving. Saturated chloroform water in doses of 3 fl. oz. is useful for the same purpose if vomiting is a symptom, as it aids in the asepsis and in moderating the alimentary reflexes. A half-hour sitz-bath at 107° F. once or twice a day has the same soothing effect, by its action on the peripheral circulation. The high temperature is necessary to its effectiveness, moderating the hyperemia of the large intestine.

Hemostatic agencies are necessary where profuse bloody discharges threaten or cause severe sudden anemia—intravenous injection of salt solution, or at least its subcutaneous injection, injections of ergotin or ergotinine, the sitz-bath at 107° every six hours, intestinal irrigation with water at 107° F., sterilized, or with 1:2000 potassium permanganate at low pressure, the fountain not being held higher than 20 inches. The injections of silver nitrate and zinc sulphate recommended by Trousseau are not well tolerated, and may even increase the pain.

Dynamic medication is needed when the patients become prostrated by hemorrhagic stools, much and severe straining, sleeplessness, etc. Injections of ether, caffeine, or camphor oil are useful; but the writer finds normal (physiological) salt solution, in 3 to 5-fl.-oz. doses, to be most effective for re-establishing the pulse, and also for lessening the number of stools. Saline injections are necessary in grave cases at the outset, in others during convalescence.

The writer's mortality has been less than 1 per cent., and the mean duration of his cases thirteen days.

For children purgatives must be guardedly given.

The treatment of dysentery, he concludes, ought to be different in all climates from that of simple diarrhea therapy and

diet; it ought to entail asepsis of digestive tract, by purgatives in general, salines in particular, and exclusive milk diet. Emphasis is not laid on auxiliary antiseptics. For pain and tenesmus he recommends hot baths, hypodermics of morphine hydrochlorate in small doses, or phenic acid 1 per cent.; for hemorrhagic loss, hot sitz-baths, ergotin, hot rectal injections; for collapse, ether, caffeine, and small saline injections. In no case and in no time of the disease should opium be given, nor bismuth subnitrate, tannin, rhatany, silver nitrate, lead acetate, etc.

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### The Therapeutics of Tuberculosis

It is stated by Dr. F. L. Flick,<sup>1</sup> of Philadelphia, in a recent paper, that what is needed very much in the therapeutics of tuberculosis is more exact knowledge of the indications for the use of drugs. It is not enough to know that a certain drug is useful in the treatment of tuberculosis, but we should also know when and how to use it. He states that the most important factor in the recovery from tuberculosis is resisting power, and therefore the most important duty of the physician is to fortify this power. Whatever makes for resisting power makes for recovery. Whatever helps digestion, improves assimilation, and keeps the organs in a normal condition aids in this direction. Nothing should be given that will irritate or interfere with an organ. Nature should be closely watched, and symptoms that indicate nature's effort at getting rid of the disease should only be interfered with in the most guarded manner. Cough medicines, stimulants, and depressants must all be used with caution. Due consideration should always be given to the influence of reflexes in the production of symptoms. For example, an irritable cough in the early stages of tuberculosis may be due to the irritation of the nerve ends of the lungs set up by the tubercle bacillus, plus the irritation of the nerve ends of the stomach set up by food during the process of digestion, whereas very little cough might result from the irri-

tation in the lungs minus the irritation in the stomach. Under such circumstances the cough will be more readily relieved by the administration of pepsin and hydrochloric acid than by opium. What is true of the relationship between the stomach and the lungs is true in a lesser degree of the relationship between the heart and the lungs, the lower alimentary tract and the lungs, the kidneys and the lungs, and the skin and the lungs. For this reason each of the important organs should be kept in as nearly normal condition as possible. Occasionally a mild stimulant to the heart or liver, a gentle aperient, a relaxation of the tension on the kidneys or a better protection to the skin, will start a patient on the road to improvement, or will allay distressing symptoms when more direct medication has failed. The individuality of the patient should be carefully studied and due allowance made for idiosyncrasies in the administration of drugs. Nothing should be given that disagrees with the patient, however beneficial it may have been to some one else. Strychnine, digitalis, digestive ferments, mercury salts, nitroglycerin, acids, vegetable tonics, iron, bismuth, charcoal and diffusible stimulants are often of value in building up resisting power.

Strychnine is one of our most useful remedies in such cases. It is indicated in the emaciation of the early stages. It seems to act as an antidote to the depraved condition of nutrition brought about by the presence in the system of tubercle bacilli. In incompetence of the circulatory system digitalis is required. Overacting heart and constricted blood-vessels contraindicate its use. When there is a soft, lax, liquid pulse, a weak, timid impulse, or a flabby, murmurish heart-sound, digitalis should be used. When there is valvular disease, with incomplete compensation, it is also indicated. Diastase, pepsin, papain, and pancreatin are indicated in most cases at some stage of the disease. When starchy food is not properly digested, diastase is required before or during meals. Many of the malt extracts on the market contain no diastase, so that care is neces-

<sup>1</sup>*Therap. Gazette*, XXIV, p. 1.



sary in making a choice. In gaseous eructations due to fermentation, diastase is required. When food does not properly digest pepsin is required. The proper conditions for its use are best determined by trial. Where there is dry, irritable cough and heavy, languid feeling after eating, with coated tongue, want of appetite and dislike of food, pepsin is usually beneficial. In intestinal fermentation, as indicated by distended bowel, pancreatin is needed, and should be given two or three hours after meals.

When the portal system is clogged by overfeeding, calomel is of value. A few doses given at short intervals restore the entire digestive tract to a working condition. In constipation, furred tongue, disinclination for food, and a feeling of fullness, calomel will be found of great value. When a slower and more even stimulation of the liver is desired, corrosive sublimate can be substituted for calomel with advantage. In hemoptysis nitro-glycerin is our best remedy, and should always be thought of when there is excessive constriction of the blood-vessels or an overacting heart. Minerals and fruit acids should be used freely in all sorts of cases. Dilute hydrochloric acid should always be associated with pepsin. Dilute phosphoric and dilute nitro-hydrochloric acids are of advantage in some cases. Fruit acids are best given in fresh fruit, and a liberal quantity is advised.

Cinchona, cardamom, gentian, calumba, and quassia are of service, but it is good practice to change from one to the other at frequent intervals. Iron, as phosphate or as reduced iron, is a favorite, particularly when combined with pepsin. It is given in all anemic conditions. When there is a dry, furred tongue, and small, semi-liquid, rather frequent stools, bismuth and charcoal are among the best remedies.

The old-time idea that a consumptive cannot use too much of a diffusible stimulant should be discountenanced by the profession. The improper use of such stimulants does more harm than good. In depressed states of the nervous system, as manifested by a feeling of melancholy and a disposition to fret and worry, stimulants

are indicated. The author prefers (1) aromatic spirits of ammonia; (2) brandy, and (3) whisky, but sometimes he combines them. Aromatic ammonia he gives in doses of from one-half to one teaspoonful about every three or four hours. Patients accustomed to the use of liquors are best treated with aromatic ammonia. Stimulants should not be employed unless there is a positive indication for them, and their use should be discontinued as soon as they have fulfilled their object.

In treating tuberculosis it is impossible to make a direct attack on the tubercles. They are usually shielded against such attack by being entombed in necrosed tissue. When they find their way back into living tissue again, they do so slowly and require a long time.

The author continues: We know of many germicides for the tubercle bacillus, but of none which will not also destroy all living tissues; but even if we knew of a substance which would be poisonous to the tubercle bacillus and not to living tissues, we would still have much difficulty in combating tuberculosis in this way; for unless we could keep the blood constantly mixed with the germicide for months and years we would run the risk of reinfection with new colonization and new processes. Our hope lies with the indirect method of attack upon the tubercle bacillus by destruction of soil, or, in other words, by the creation of immunity. If we can successfully destroy the soil it will make no difference how many bacilli may be poured into the blood, or for how long a time, as they cannot again get a foothold, and, in the course of nature, the last one will die or be ejected from the economy. It is this and this alone that constitutes a cure, for so long as a living tubercle bacillus remains in the organism recurrence of the disease may take place.

The nucleins, the serums, and a few other remedies have been advocated as aids to immunization. Those who have employed them have not pointed out in what cases or conditions they should be used. The preponderance of testimony is in favor of the serums for use in early stages of the

disease. In the author's opinion, drugs containing iodine are the best aids to immunity. When given in large doses, such remedies usually interfere with digestion. To overcome this the author adopted the plan of giving them by inunction. He asserts that he has no doubt of the curative effect of iodine when given this way, and pronounces it a specific in the early stages of the disease. Of drugs that unfit the tissues as soil for the propagation of the tubercle bacilli, he thinks the most promising are the essential oils, particularly oil of peppermint and oil of thyme. The most recent suggestion in regard to the mode of using these comes from France, where Dr. Mendel reports excellent results from dropping oil of thyme, mixed with olive oil, directly into the trachea with a long, curved syringe. Dr. Mendel uses the following formula:

Oil Thyme.....	} of each, 80 min.
Oil Eucalyptus....	
Oil Cinnamon.....	
Olive Oil, Sterilized... ..	3½ fl. oz.
Iodoform.....	75 grn.
Bromoform.....	30 min.

Of this mixture, 45 min. is emptied at one time into the trachea. Dr. Mendel ascribes the good results derived from this mode of treatment to the oil of thyme, and looks upon the other ingredients of his mixture as of secondary importance.

Tuberculosis pure and simple is not a very fatal disease, and many persons so infected do not develop enough symptoms to arrest attention. There are two kinds of germs that fraternize with tubercles and produce serious symptoms. These are the pneumococci and the pus-forming organisms. Tuberculous patients should keep away from people having colds. When one is contracted, effort must be promptly made to get rid of it. During the first day or two good results may be obtained from small doses of calomel given at frequent intervals, or from atropine, aconite, and opium, and from the use of astringent gargles. When the cold has extended beyond the pharynx, ammonia, in the form of aromatic spirits and hydrochlorate, will give the best results, and should be used in large doses. Quinine, brandy, and whisky may

also be of use. Absolute rest should always be insisted on, at least during the first few days of the cold. When the inflammation has extended down into the bronchial tubes it is apt to stick there very tenaciously, and for this reason active treatment of it should be scrupulously pursued until all vestiges of it have been removed.

When pneumonia occurs in a tuberculous patient the treatment should be the same as in uncomplicated pneumonia.

Mixed infection, in which the pus-producing germs take part, is the most serious condition into which a tuberculous subject can fall, and offers the greatest difficulties to the therapist. With it come chills, fever, sweats, distressing cough, and profuse expectoration. Its symptom-complex constitutes consumption, the opprobrium of scientific medicine and the nightmare of the practitioner of to-day, as it was of Hippocrates and his confrères. The one remedy, the author states, that brings some comfort and encouragement in the struggle against this condition is creosote. Creosote in large, well-sustained doses will greatly reduce the suffering from consumption and will conduce to recovery. Since he has learned to use creosote properly he has rarely to resort to remedies for chills, fevers, sweats, and coughs. The best way to give creosote, as far as his knowledge and experience goes, is in large draughts of hot water. He thinks there is also some advantage in giving it some time before meals. The dose should be gradually run up to 40 or 50 drops three times a day, and as the dose of creosote is increased, the quantity of hot water should likewise be increased. With the maximum dose of creosote he usually gives a pint of hot water. The water is a good diluent and does not burden the digestive and excretory systems.

When, finally, the tuberculous subject drifts into a bedridden, helpless condition, exhausted with poisoning from parasitic life, it only remains to give him comfort and ease by the judicious use of opiates, antipyretics, and antisudorifics. Opium, phenacetin, atropine, and aromatic sulphuric acid are our chief resources.

# PROGRESS IN MATERIA MEDICA

**Cane Sugar and Sodium Hydrate** have both already been tried as additions to the physiological salt solution employed for intravenous infusion, but the great pain following their injection has made their use impossible. Schücking<sup>1</sup> reports very satisfactory results from a modification of this procedure, in which he adds from 0.03 to 0.05 per cent. of sodium saccharate to the usual 0.6 per cent. salt solution. It is most essential that the sodium saccharate employed be of unimpeachable purity, for the slightest trace of free sodium hydrate impairs the efficacy of the solution, and more considerable contamination induces cardiac paralysis.

The effect of the subcutaneous injection or intravenous infusion of this solution is most marked. In one case reported by the author the patient was in a perilous condition as the result of post-partum hyperemesis; nothing had been retained on the stomach for several days, and even rectal alimentation proved futile. The injection of 8 fl. oz. of physiological salt solution produced a temporary improvement, but was speedily followed by a relapse, upon which a like amount of the same solution, to which 0.03 per cent. of sodium saccharate had been added, was injected, with the result that the force of the pulse rose almost instantly, consciousness was recovered, and the ructus ceased. In half an hour the patient was able to retain nourishment given by the mouth in tablespoonful doses, and an hour later an abundant secretion of urine took place.

In addition, the author claims excellent results for the substance when given internally under all conditions where alkalies are indicated, and strongly urges further experimentation.

**Oil of Turpentine** is known to have remarkable antiseptic and deodorizing properties. A recent application is its use in overcoming the distressing offensiveness of the discharge in cases of carcinoma of the cervix. Madden<sup>2</sup> has found it of great value for this purpose and advises the following injection: Half an ounce of oil of turpentine is put into a quart of boiling water, and, after the addition of a tablespoonful of magnesia, the mixture is allowed to cool to the body temperature. Before use the douche should be well

shaken to secure thorough admixture of the turpentine. Not only is the odor of the discharges abolished by this application, but it also exerts a very appreciable hemostatic effect and greatly reduces the amount of the bleeding.

**Plasmon**, according to a series of observations made by Virchow,<sup>1</sup> is a valuable artificial food-product, obtained from the casein of fresh butter-milk. Two forms of administration are advised. One is in the form of a beverage, which is simply prepared by the addition of the plasmon with a small amount of sugar to boiling water, the mixture being well stirred for about half a minute, after which it is ready for use. The other method is in the form of plasmon bread, about 8 oz. of the substance being added to each 5 pounds of flour.

The author concludes that plasmon is a very nutritious food, and lends itself readily to the demands of the kitchen.

**Ichthyol Vasogen**, a combination in which the absorption of the ichthyol is facilitated to a remarkable degree by the presence of the vasogen member, has already given good results in the treatment of various affections of the skin and mucous membranes. Suchannek<sup>2</sup> and Ullman<sup>3</sup> have both published favorable reports, but their method of application consisted in a simple painting of the diseased portions, while Edlefren<sup>4</sup> considers that the full efficacy of the preparation is to be obtained only by inunction accompanied by massage.

It is especially in acute and chronic joint affections that this treatment is of value; the beneficial effect of ichthyol on all such processes has long been recognized, but its activity is vastly increased in the new combination. In acute conditions, where there is much local tenderness, very energetic friction is, of course, out of the question, but it is usually possible to cause the complete absorption of 8 to 10 drops of the substance over the larger joints, and a correspondingly smaller amount over the smaller ones, which treatment will in most cases be found sufficient. Without giving detailed histories of separate cases, the author recommends the substance

<sup>1</sup>*Therap. Monatsh.*, XIV, No. 1.

<sup>2</sup>*Therap. Monatsh.*, XIII, No. 7.

<sup>3</sup>*Münch. med. Woch.*, XLV, Nos. 23 and 24.

<sup>4</sup>*Therap. Monatsh.*, XIV, No. 1.

<sup>1</sup>*Therap. Monatsh.*, XIII, No. 12.

<sup>2</sup>*Therap. Monatsh.*, XIII, No. 12.



warmly as a valuable therapeutic aid in acute and chronic rheumatic affections of all sorts, the most favorable results being in those cases where the process is not of long standing and where more or less energetic massage is feasible. Even in chronic polyarthritis and arthritis deformans, however, the pain is nearly always markedly relieved and the mobility of the affected members increased.

**Pyrogallol**, although widely used in photography and in various chemical operations, has found but limited application in medicine, and very little is known about its physiological action. It has been recommended in cases of internal hemorrhage, but its principle field of applicability is in the local treatment of skin-diseases, such as lupus, psoriasis, chancre, and epithelioma, the property being ascribed to it of attacking only the diseased tissues and leaving the healthy portions unaffected. In 1 to 3-per-cent. solution it is considered a powerful antiseptic and antifermentative.

When mixed with blood, strong solutions cause the formation of a solid red substance which is insoluble in alcohol and water, and has been introduced into therapeutics under the name of hemogallol. Large doses of pyrogallol administered to animals act as a powerful poison, causing a destruction of the red corpuscles and hemoglobinuria. The blood has the color of coffee grounds, is more liquid, and coagulates easily, and the fibrin and hemoglobin are decreased in amount.

In considering its effect on the elimination of carbon dioxide, Braunstein<sup>1</sup> concludes as follows:

1. Pyrogallol decreases the amount of CO<sub>2</sub> eliminated both in warm-blooded and cold-blooded animals.

2. The respiration of warm-blooded animals is affected to a remarkable degree: during the first few hours of action of the drug the breathing grows rapid and deep, even symptoms of dyspnea are often produced, but later on disappear; in the stage of lowered temperature and somnolence the respiration becomes more regular and may even be slowed.

3. The temperature of warm-blooded animals is greatly reduced: it may drop as much as 5° C. below the normal.

4. In warm-blooded animals there is above all a great increase in the general excitability, the animal trembles, and slight stimuli produce severe convulsions. Later on a condition of paralysis supervenes,

which begins in the posterior extremities and does not seem to be accompanied by any loss of consciousness.

5. In cold-blooded animals there is produced a marked hyperesthesia of the skin, with an increase in reflex irritability and disorders of co-ordination.

After intravenous injection of pyrogallol the blood of warm-blooded animals often contains methemoglobin; but this is not always the case, the result depending probably on the amount of the substance injected and perhaps also on the alkalinity of the blood.

**Dionin** has been used by Dr. Wolffberg,<sup>1</sup> of Breslau, in a number of eye-diseases with excellent results. The writer employed the remedy in solutions varying in strength from 2 to 10 per cent., in powder form, and in the form of small rods containing 10 or 25 per cent., using cacao butter as a basis. This last form was preferred, the rods being introduced into the conjunctival sac, the eye being closed and covered for a few minutes with cotton. The rod rapidly melts, and the action of the dionin is observed in a short time, the lids becoming edematous to half their extent, the edema gradually extending to the temples, cheeks, and nose. The palpebral conjunctiva becomes deep-red and very shiny, and the cornea also has a shining appearance, its sensitiveness being somewhat reduced.

In the author's cases the burning sensation first experienced disappeared in about five minutes, and the flow of tears stopped in about ten minutes. An hour later the edematous phenomena were still practically unchanged, but the lymphatic secretion had sunk, so that the edema of the lower lid projected more over the cheek, and the chemosis of the bulbar conjunctiva covered only the lower half of the cornea, but was more prominent and appeared to be more watery. In a case of trachoma presenting these phenomena, the latter ran their course and subsided in two to three hours, although in other patients' traces were still visible after eighteen hours. Rods containing 10 per cent. of dionin were introduced every two hours, the eyes becoming apparently accustomed to the remedy and reacting less strongly. Under this treatment the eyes became less turgid, and the panus noticeably thinner.

Accompanying the lymphatic engorgement a ciliary congestion also occurs, and might perhaps be considered as a disadvantageous by-effect. Nevertheless, in mesokeratitis vasculosa the temporarily in-

<sup>1</sup>Arch. int. de Pharm. et de Thérap., VI. Nos. 3 and 4.

<sup>1</sup>Woch. f. Therap. u. Hyg. d. Auges, VIII, No. 3.

creased ciliary congestion was without disadvantageous effect, while the lymph-engorging action of the dionin finally effected a cure. A number of cases of this disease, as well as of keratitis fascicularis, were thus benefited.

Dionin was also used in two cases of severe, perforating, infected bulbar wounds, with success. Besides these cases there were treated a number of corneal ulcers, with and without infiltration, and with and without hypopyon, and several cases of severe keratomalacia in the newly born. In all cases the impression was gained that the dionin facilitated a cure. The favorable action of the drug was equally observed in a number of cases of retinal detachment, choroiditis, and chronic inflamed glaucoma.

The author believes that the lymph-secreting power exerted by dionin, and discovered by him, is a fact of scientific and therapeutic value. Dr. Carl Meolaier,<sup>1</sup> of Dr. Wolffberg's clinic, has used dionin in two cases of fascicular keratitis, in three cases of phlyctenular eye-disease, and in two of trachoma, in the form of a 5-per-cent. solution. Immediately after the instillation, in the cases of keratitis, an intense reddening of the conjunctival sclera was observed, the eyelids were dropped more frequently, and the tear secretion increased. At the same time the eyelids began to swell, beginning at the inner angle and extending over the upper lids, then to the lower, and partially over the cheeks. During this time intense chemosis had supervened, completely surrounding the corneo-scleral junction, and assuming a bright-red color, while the diseased parts exhibited a violet-red color. In both cases the affected cornea, after treatment with the dionin, was noticeably clearer. Besides, the pupil had previously responded only moderately, and that slowly, to atropine alone, but with atropine and dionin together a prompt and pronounced dilation was secured. The pains decreased, and the burning sensation caused by the dionin soon ceased, but left an uncomfortable feeling "as if the eye had become too large." The curative process proceeded rapidly, and the pains, which had previously been very severe, were no longer experienced. The usual treatment was carried on in addition, but the influence of the dionin on the period of healing was unmistakable.

In the phlyctenular affections the customary effects of the dionin were exhibited. In one case, in which both eyes were affected, one was treated with dionin, the other

not, but otherwise both were treated alike. The results were clearly in favor of the use of dionin, as, after a violent reaction, the phlyctena of the eye treated with dionin were, after three days, rapidly healing, which could not be said in the case of the other eye.

In the cases of trachoma, no notable results were obtained. After the instillation of the dionin, the cornea was unquestionably clearer, but no influence on the curative process could be confirmed.

In all the cases treated, however, it was observed that the more vigorous the chemosis induced, the more satisfactory the result, and that the more severe the affection, the more vigorous was the chemosis. In cases where no chemosis occurs, but where the congestion is shown in the swelling and reddening of the lids, as in trachoma, the prospects of success are less.

**Antivenene Serum** (Calmette's) has proved successful in a case of snake-poisoning occurring in Meerut, India, reported by Major S. J. Rennie,<sup>1</sup> the surgeon in charge. The patient was a Hindoo boy, aged 12 years, who was brought for treatment in a semi-comatose condition, some eight or ten hours after he had been bitten. On examination, two small punctured wounds were detected on the back of the third phalanx of the left little finger, which, judging from their appearance, had been inflicted by the well-known krait (*Bungarus caeruleus*), a reptile some 12 or 18 inches long. The arm, face, left side, thorax, and throat were edematous, and there was complete paralysis of the left side of the body. The eyeballs were protruded and staring, with ptosis of both eyelids. Sanious froth was bubbling from his mouth, and the glottis was evidently obstructed, as the breathing was labored and stertorous and deglutition impossible. The pulse was 110 and dicrotic; the respirations 25 and entirely abdominal in character; the surface of the body was cold and covered with clammy perspiration. He could be slightly roused with difficulty, but soon sank again into a state of lethargy and collapse. His condition was very grave and apparently hopeless.

Twelve Cc. (3 fl. dr.) of Calmette's antivenene serum was at once administered hypodermically and enemas of brandy and beef-tea given. The case was so far advanced that it was useless to attempt the local treatment of the wound with the chloride of gold solution, as recommended by Calmette. For the next fifteen minutes the

<sup>1</sup>Woch. f. Therap. u. Hyg. d. Auges, III, No. 3.

<sup>1</sup>British Med. Jour., No. 2029, p. 1412.



patient's condition remained much the same, when the paralysis of the respiratory muscles, which had been slowly coming on, became fully developed, and he ceased to breathe altogether. The pulse beats were now only four a minute; each individual beat hard and "hammer-like" at first, but getting more and more faint as the heart's action slowly ceased. Artificial respiration was immediately begun and kept up for half an hour, by which time the serum had done its work and the boy had regained power over his respiratory muscles. An injection of  $\frac{1}{80}$  grn. of strychnine was given hypodermically as a cardiac and nerve stimulant. As soon as the breathing was restored the brandy and beef-tea enemata were continued.

From this time he made a rapid and uninterrupted recovery, the symptoms disappearing in the inverse order to their onset. In forty-eight hours the edema and paralysis of the limbs, and the blindness were completely gone, and in a short time he was as well as ever.

Major Rennie has treated other cases with the antivenene successfully, and he mentions the fact that the supply used in this case had been in his possession for nearly four years as an evidence of its standing quality.

**Gaiaform** and **Creosoform**, preparations of formaldehyde with guaiacol and creosote, respectively, are treated of in detail by J. Brissonet.<sup>1</sup> Gaiaform occurs as a yellow, tasteless, odorless powder when recently made, but acquires an odor of vanilla when heated for several days. It is insoluble in water or ether, but is quite soluble in alcohol and in solutions of potassa or soda. It is claimed to be non-toxic, as much as 15 Gm. (4 dr.) having been given per day to a dog weighing 16 kilos (about 35 lbs.), without the animal being inconvenienced thereby. Trials made with gaiaform in tuberculosis are reported to have given favorable results.

Creosoform is described as a greenish-yellow powder when recently made, but gradually acquiring a yellowish color on contact with air. In physical, chemical, and therapeutic properties it resembles gaiaform. It is odorless and tasteless; soluble in a mixture of alcohol and chloroform, and in alkaline solutions (coloring the latter a reddish-brown); insoluble in water or ether; slightly soluble in alcohol. Creosoform is claimed to be non-toxic, and to readily serve for the administration of creosote internally in tuberculosis, and also as an intestinal antiseptic. In dilute potassa or

soda-solution creosote is liberated in a few days; and this phenomenon is said to take place also on contact with the living cell; and thus, it is argued, it is probable that the remedy is decomposed into creosote and formaldehyde when applied to wounds. It does not appear to exert any powerful action on microbial cultures. It inhibits the development of the colon bacillus if added to the cultures in the proportion of 2:1000, and in strengths of 3:1000 the bacilli are destroyed.

Formaldehyde also forms compounds with tannin and guaiacol, and with tannin and creosote, yielding preparations named tannogaiaform and tannocreosoform, respectively. These are stated to be odorless, tasteless, and non-caustic. Besides tuberculosis and intestinal disturbances, these preparations are believed to be of service in humid dermatoses, hyperidrosis, etc.

**Aqueous Salt Solutions** are, according to a research made by Pfeiffer and Sommer,<sup>1</sup> subject to the same physical laws in their absorption from the stomach as have been already determined under like conditions in their absorption from the intestines. The peculiarities in the structure of the gastric mucous membrane do, however, effect some minor variations from a simple osmotic process; for example, this membrane is permeable for water only in the direction toward the stomach cavity. The solutions employed in the experiments were of sodium sulphate, sodium chloride, magnesium sulphate, and cane-sugar, and the determinations made by the aid of the freezing points. Hypertonic solutions—that is, those whose molecular concentration was greater than that of the blood serum—showed a diminution in concentration; hypotonic solutions increase, and isotonic ones were in general unchanged. Investigation of the phenomena in cases of various forms of gastric disorder gave results which did not appreciably vary from the normal.

**Orthoform** has been used with good results by Vogt<sup>2</sup> in the treatment of *herpes zoster*. Applied at first merely with a view to its locally anesthetic effect, the author was encouraged by the relief experienced to make further investigations and now gives it as his opinion that through its well-known astringent action on the cutaneous vessels it exercises a directly curative effect on the malady itself. This theory is further substantiated by the recently

<sup>1</sup>*Archiv. f. exper. Path. u. Pharmacol.*, XLIII, Nos. 1 and 2.

<sup>2</sup>*Rev. de Thérap. méd.-chir.*, LXVI, No. 24.

<sup>1</sup>*Réf. de Pharm.*, XI, p. 142.



published theory of Abadie that the underlying cause of herpes zoster is to be found in a morbid state of the cutaneous blood-supply due to a local vaso-motor disturbance.

In only one instance were any unpleasant consequences observed as the result of the remedy. This was in the case of a patient who a few days after the application of the orthoform ointment suffered from a severe type of dermatitis, which, however, yielded under milk diet and topical treatment. It was afterwards discovered that this individual had always been subject to similar urticarial eruptions on very slight provocation, and the author considers that this unpleasant mischance is not a contra-indication to the employment of the remedy. In making the applications it is advisable to lay bare as much absorbing surface as possible by removing crusts and snipping off the tops of the bullæ with scissors; simply dusting on the dry powder is preferable to the use of ointments or solutions.

**Stypticin** has been used with satisfactory results in severe *hemorrhages following tooth extraction* by Dr. J. Munk,<sup>1</sup> of Duna-Szerdahely. He was led to use it as a last resort in a case in which the hemorrhage had resisted every other remedy. The application of a stypticin tablet directly in the bleeding cavity quickly stopped the flow of blood. The success obtained in this case induced him to employ the stypticin in five succeeding cases with the same satisfactory result. These successes led also to the use successfully of a 10-per-cent. stypticin solution in nose-bleed.

**Antitussin** is an organic fluorine preparation furnished to the profession in the form of an ointment, consisting of 5 parts of difluordiphenyl, 10 parts of vaselin, and 85 parts of pure wool-fat. This substance has a very high rate of diffusibility through animal membranes; in its therapeutic application it is limited to purely local use, as the fluorine bodies are all too irritating to the gastro-intestinal tract to permit of their internal administration. Max Heim<sup>2</sup> recommends it in the treatment of whooping-cough, for the treatment of which disease it was introduced. He reports sixteen cases in which it gave good results, acting promptly and satisfactorily after quinine, atropine, and other customary remedies had failed to influence the course of the malady. The method of application advised is as follows: The neck,

chest, and interscapular regions are carefully cleansed with soap and warm water, and thoroughly dried. A portion of the ointment of the size of a walnut is then distributed equally over the surface and rubbed into the skin with the palm of the hand, after the manner of massaging, and is to be continued until complete absorption has taken place.

The conclusions reached by the author as the result of his clinical observations are as follows:

1. One of the most prominent properties of the drug is its powerful antispasmodic action. In the more serious cases, after a few inunctions, the severity of the attacks was so diminished that the intense dyspnea, cyanosis and apparent asphyxia were abolished, and after a few days' use the symptoms were converted into those of an ordinary catarrhal inflammation.

2. The second effect of the antitussin is a strongly expectorant one. Attendant on the diminution of the paroxysms in frequency is a marked liquefaction of the mucus, rendering its expulsion a matter of little difficulty.

3. The paroxysms are decreased in number by one-half as early as the second day, and rapidly continue to diminish; the period of convulsive coughing is reduced from the customary four or five weeks to from a few days to two weeks, according to the date of commencing the treatment.

4. If the use of the drug is begun very early, there is a possibility of restricting the disease to the catarrhal period without the occurrence of the paroxysmal stage.

5. As antitussin is comparatively non-toxic in the quantities indicated, undesirable by-effects in the course of the treatment are not to be apprehended.

The author also thinks highly of the preparation in the treatment of acute and chronic bronchial and laryngeal affections, though with these his experience is less extended and he advises further observation.

**Creosote** in *phthisis* is the subject of a recent paper by Dr. I. H. Hance,<sup>1</sup> of Lakewood, N. J. He holds that its chief beneficial action comes from its antifermentative power in the stomach and bowels, and not in any antitubercular power it possesses; that too large doses are injurious instead of beneficial, and should be avoided. If given in proper amounts it improves the patients' appetite and digestion, so that in this way it brings about a condition of general improvement. The author states that creosote is to-day the most widely

<sup>1</sup>*Aerzt. Centr.-anzeig.*, XI, No. 27.

<sup>2</sup>*Berl. klin. Woch.*, XXXVI, No. 50.

<sup>1</sup>*Therap. Gazette*, XXIV, p. 7.

used drug in the treatment of phthisis pulmonalis, and he advises the use of only pure beechwood creosote, and for a long period of time. It should be begun with quite small doses once or twice a day, well diluted, and on a full stomach. He advises against its combination with other drugs, particularly cod-liver oil. The urine should be watched during its administration.

Creosote and whisky, equal parts, mixed in half a tumbler of water or milk, is well tolerated by the stomach. Capsules packed lightly with bismuth carbonate will permit the depositing of 3 or 4 drops of creosote in them before being capped. Then the physician can use two capsules for doses of 6 or 8 drops instead of crowding the full dose into one capsule, and can readily explain to a patient how this is done, and its economy. See that the capsule is swallowed with a considerable amount of fluid. These capsules can be prepared more satisfactorily by the pharmacist. Mixed with a little glycerin and tincture of gentian, creosote can readily be given. Six to eight drops taken after each meal is the limit. Begin with 1 or 2 drops and increase 1 drop every third or fourth day until the maximum dose is reached.

Creosote carbonate has been much used by the author in the past five years; it is well tolerated by the stomach and has given satisfactory results. The doses, up to twenty-five drops, after each meal, should be given in milk or in soft gelatin capsules. One objection is that this drug is expensive. Pills of creosote, or creosote carbonate capsules, made by the wholesale, become old and hard and have been known to pass undissolved through the alimentary canal.

When creosote is tolerated it is indicated in any form of tubercular affection of the lungs, but more particularly in afebrile cases, in first and second stage cases, where the expectoration is free, the cough distressing, or much bronchitis exists. In febrile cases it often is valuable, but must be administered more cautiously.

**Gujasanol** is defined by Dr. Alfred Einhorn<sup>1</sup> as diethylglycocoll-guaiacol hydrochlorate. It forms white prisms having a faint odor of guaiacol, and a saline-bitter taste; very readily soluble in water: melting-point, 184° C. Its aqueous solution is neutral towards litmus: on the addition of carbonates of the alkalies free diethylglycocoll-guaiacol is deposited in the form of an oleaginous liquid. Gujasanol is credited with antiseptic and bactericidal powers

about equal to those of boric acid, and is claimed to be non-toxic and a good deodorant. The remedy was employed by Dr. Einhorn in phthisis, in doses of from 3 to 12 Gm. (45 to 180 grm.) daily, per os, in wafers; also hypodermically in the form of a concentrated solution, which caused neither local irritation nor any disturbance of the blood, heart, kidneys, etc. The gujasanol was further used in laryngeal tuberculosis, tuberculous diarrhea, ozena, ichorous carcinoma, sarcoma, stomatitis, ichorous cystitis, chronic conjunctivitis, etc.; internally, or topically as washes, injections, etc., varying from 1:5000 to 1:50 in strength, according to circumstances.

**Bromipin** in the treatment of *epilepsy* was the subject of an inaugural dissertation by Dr. F. Schultz, of Hildesheim, submitted to the Medical Faculty of the Georg-August University of Göttingen. The author gives the clinical history of six cases of epilepsy in which the remedy had been employed. These cases had been selected from among the patients of the Göttingen Lunatic Asylum, and before treatment had been kept for two weeks without any medication in order more fully to gauge the action of the bromipin. The remedy was given per os; later, however, subcutaneous injections were given in two cases. The beginning dose was 4 Gm. (1 teaspoonful) per day, increased gradually until after two weeks 8 Gm. (2 teaspoonfuls) were being given. A week after this 10 Gm. (2½ teaspoonfuls) were administered per dose, and this quantity was given for some time in order to note the results following continuous medication. Then for two weeks 12 Gm. (3 teaspoonfuls) were given, the next two weeks 15 Gm. (1 tablespoonful), and the two successive weeks 20 and 25 Gm. (5 and 6 teaspoonfuls) each. From this point the doses were reduced gradually to 10 Gm. daily. During this period the patients were kept under careful control, the dejections watched and urine daily examined for bromine, sugar, albumin, acetone, and acetoacetic acid, while the reaction and specific gravity were always noted. The heart-action was carefully watched, because of the known action of potassium bromide on this organ. The blood-pressure and body-weight were also observed, the entire observations extending over a period of six months. All the cases treated were inveterate in character, some being very severe; and a number were already habituated to bromides. These he naturally expected not to respond so promptly to treatment.

<sup>1</sup>Münch. med. Woch., XLVII, p. 10.



The most careful observation failed to show the slightest trace of gastric or intestinal irritation, the bromipin being well borne in all cases. The acne remaining from the previous exhibition of bromides gradually disappeared. In recent and mild cases the bromipin acted more rapidly and positively than in older cases. The remedy showed itself to be particularly of value in all those cases where the continued use of bromides is contraindicated because of the appearance of bromism. A disappearance of this manifestation may, however, be expected with certainty on the administration of bromipin, which, in sedative powder, is not only equal to potassium bromide in equivalent amount, but has proved effective in cases in which bromides were useless. Experience demonstrated that the daily doses first given were much too small. In order to influence the epilepsy larger doses, like those last given, are necessary, and more rapid results would have been obtained, it is believed, if large doses had been given at once and continuously. That the maximum dose was never reached is evidenced by the absence of even the slightest toxic symptom.

The remedy was taken without objection for long periods, and proved to be especially valuable in cases where epileptics had developed an idiosyncrasy towards bromides, because the bromipin in nowise recalls the latter, whether in appearance or taste. Where extreme aversion exists towards bromides, the bromipin may be readily given under the guise of "cod-liver oil." When the oleaginous taste is objected to, this may be corrected by the addition of a little peppermint oil or oleobalsamic mixture, or by exhibition as an emulsion.

Experiments were also made in the Göttingen Psychiatric Clinic to test the absorbability of the bromipin by inunction. The results, while not decisive, showed that the remedy may prove effective when used in this manner, and be eligible in cases where it cannot be well given internally.

Dr. Wulff,<sup>1</sup> director of the Sanitarium at Langenhagen, Hanover, also reports that bromipin afforded excellent results in several cases of epilepsy. The results were noteworthy, as the disease had resisted the other remedies heretofore ordinarily employed. A 10-per-cent. solution of bromipin was given in doses of one to two teaspoonfuls, increased to three, the attacks becoming less severe, and much more infrequent. The excellent effects obtained led the author to employ the remedy also

in seasickness. Here, too, remarkably good results were obtained. In two cases it prevented the attack in persons who were subject to the trouble, and in several others it satisfactorily curtailed the attack. In these cases, also, the remedy was given in doses of two teaspoonfuls every two or three hours. In those cases where objection was made to the oleaginous taste it was given mixed with beer or wine, or inclosed in gelatin capsules. Bromipin also afforded very good results in a number of cases of nervous insomnia. In no case were any unpleasant by-effects observed.

**Thyroid Extract**, which seems almost universal in its therapeutic applicability, has appeared to give marvelous results even in the treatment of delayed union of fractures. The many favorable cases reported would apparently leave no doubt as to its efficacy, but Guinard and Rochard<sup>1</sup> cite two instances of total failure after the administration of fairly large doses. At the same session, Poirier reported a case undoubtedly brought to a successful issue by the same means, so that evidently further observation is necessary before an exact understanding of its action can be arrived at and its therapeutic indications in this class of cases formulated.

**Spleniferrin** is to be considered as an attempt to combine organotherapy with the simultaneous administration of an inorganic drug, and is another witness to the necessity for some compound which shall contain a readily assimilable form of iron; also to the fact that none of the preparations so far in use seem entirely to meet the requirements. In view of the fact that the spleen of the adult ox or horse contains nearly 5 per cent. of iron in the form of albuminate, and considering that albuminates are digestible and supposedly absorbable, the new preparation, which consists of dried and powdered spleen pulp enriched by a further addition of iron held in an albuminous combination, would seem to promise much in its particular therapeutic domain. Rohden<sup>2</sup> has found it most useful. Its action was especially prompt in cases of pure anemia and chlorosis, where nearly every bodily function is more or less disordered, and, in addition to the physical symptoms, there are added insomnia, depression, and various disorders of a neurosthenic character. An improvement of all the functions was observed, of general

<sup>1</sup>Société de Chirurgie, Paris, Dec. 27, 1899.

<sup>2</sup>Deut. med. Woch., XXV, No. 40.



metabolism, digestion, temperature, and cardiac activity, without any distressing by-effects, an indication that the hemoglobin percentage was being raised to the normal. The improvement in appetite and digestion is of especial significance, since relief of these symptoms alone is usually followed by a rapid rise in the hemoglobin coefficient.

Excellent results also attended the use of spleniferrin in cases of general cachexia due to long-continued, acute, and chronic affections, in typhoid conditions, after suppuration, and also in tuberculosis. This is contrary to the conclusions of most observers, who advise against the administration of iron in this condition, but the author considers that given in this shape the effects can only be beneficial.

**Solanin**, though a normal constituent of the potato, is ordinarily present in such minute quantities as never to produce symptoms. Under some conditions, however, as when germination has commenced, or in old and shriveled samples, a sufficient amount of the alkaloid may be present to cause severe intoxication. E. Pfuhl<sup>1</sup> reports what is probably the first recorded instance of a general poisoning by this means, which occurred in a military garrison, fifty-eight of the men being simultaneously attacked. The most prominent symptoms were fever, lassitude, and diarrhea; in some cases also a moderate degree of jaundice and catarrh of the upper air-passages. Mydriasis was not observed in any of the cases. Relief rapidly followed the employment of general treatment, rest in bed, calomel, etc. Examination of the potatoes showed that in the raw condition they contained 0.4 per cent., and after cooking 0.24 per cent. of solanin, or about six times the normal amount. Each portion was found to contain on the average 0.3 grn., a quantity quite sufficient to cause toxic symptoms.

**Aspirin** was made the subject of a series of observations by Filippi,<sup>2</sup> with a view to determining the rapidity of its decomposition into its constituent acetic and salicylic acids, and its presence in the urine and synovial membranes. Gallo has shown that after the administration of sodium salicylate, salicylic acid can be found in the articulations after forty-eight hours. The animals used were frogs and rabbits, 30 grn. of aspirin being given to the latter by means of the stomach-tube. The charac-

teristic salicylic reaction was speedily obtainable from the stomach contents, but did not appear till much later in the urine and synovia. In the former it was found seventy-seven hours after the administration, but in the latter its presence was demonstrable in fifty-four hours. The reaction was always more distinct and characteristic in the synovial membranes than in the urine, showing a greater accumulation of the drug just where it is most wanted.

**Saligenin**, first recommended by Lederer,<sup>1</sup> is claimed to be an efficient substitute for sodium salicylate in most of the conditions in which the latter is indicated. The experience of Goldmann<sup>2</sup> leads him to go further and declare that saligenin has all of the useful properties of sodium salicylate, and that its use is free from the objectionable features so often attending the administration of the older remedy. In particular, the tinnitus, vertigo, nausea, vomiting, cyanosis, dyspnea, prostration, and cardiac depression which so frequently require an interruption in the salicylate medication are conspicuous by their absence in the case of saligenin.

Saligenin is a flaky, crystalline substance of faintly bitter taste, slightly soluble in cold, and very soluble in hot water and alcohol. With ferric chloride, its solutions give a deep blue color; this reaction may be used to determine its presence in the urine, which matter can usually be demonstrated within ten minutes after ingestion.

The author reports twelve cases of acute articular rheumatism, attended for the most part by severe initial fever and chills, in which the symptoms were controlled by the drug. In addition to its other actions it manifests a distinctly hypnotic effect and alleviates the pain with promptness. In chronic gouty attacks, he is accustomed to treat the acute exacerbation with saligenin and continue the prophylaxis by the steady administration of aminoform. All forms of muscular pains, whether rheumatic or not, yield readily to saligenin. It is of especial service in the various pains accompanying phthisis, both on account of its analgesic action and because it does not increase either the anorexia or the sweating from which these patients are likely to be suffering. Lumbago, sciatica, and the pains of tabetic and paralytic patients are all adapted to treatment by this agent; in the latter it is more advantageous to give a single large dose, 20 grn., at once rather

<sup>1</sup>*Deut. med. Woch.*, XXV, No. 46.

<sup>2</sup>*Rivista critica d. Clin. med.*, I, No. 2.

<sup>1</sup>*Münch. med. Woch.*, XLI, No. 31.

<sup>2</sup>*Klin.-therap. Woch.*, VI, Nos. 50 and 51.

than trust to repeated small amounts. In pleurisy the drug is likewise of value, surpassing sodium salicylate in its antipyretic and analgesic effect, stimulating diuresis, and facilitating the absorption of the exudate.

Adults may receive 15 grn. every three hours, or 75 to 90 grn. in the day; children, according to age, 3 to 7 grn. at a dose.

**Nirvanin** has been used in experiments by Dr. C. A. Elsberg,<sup>1</sup> of the Mt. Sinai Hospital, New York city. The toxicity of this drug had been determined by injecting under the skin of a number of rabbits saline solutions containing a definite per cent. of the nirvanin, and the author claims that in this way he found that 0.22 Gm. ( $3\frac{1}{2}$  grn.) of this substance is the toxic dose for every kilogram (2 lbs.) weight of rabbit used, while 0.02 Gm. ( $\frac{1}{2}$  grn.) of cocaine represents the toxic power of cocaine for the same weight of rabbit. He quotes Luxenburger as having found the same results, and as having estimated the antiseptic properties of nirvanin as well. The author has kept from 1 to 10-per-cent. solutions for several months. Solutions purposely infected soon become sterile and a 1 or 2-per-cent. solution, it is claimed, remains sterile indefinitely. Boiling causes a slow deterioration of the anesthetic power. The author asserts that nirvanin has no irritating effect upon the tissues, and he has not known it to interfere with healing by primary union. Its use is contraindicated in extensive inflammatory affections, malignant new growths of large size, with ill-defined limits, and wherever else the infiltration method is contraindicated.

**Crurin** (quinoline-bismuth sulphocyanate) is a coarsely granular, yellowish-red powder of a pungent odor, insoluble in water, alcohol, and ether. Under the prolonged action of an excess of cold water, and on boiling with dilute acids or alkalis, a complex decomposition takes place, as is the case with most bismuth compounds, but otherwise it is stable and keeps well. While not deserving to be called a specific, it yet exerts a remarkably curative effect on leg ulcers, both syphilitic and non-syphilitic in origin. Steiner,<sup>2</sup> working in Max Joseph's polyclinic for skin diseases in Berlin, after a protracted series of observations, found that the lighter cases were cured by its use in from ten days to two weeks, and even the most obstinate yielded in six weeks. His method is to dust the ulcerating sur-

face lightly with the powder twice daily, and to apply a simple protective dressing. In some cases, owing to the burning pain temporarily caused by the crurin, it is advisable to dilute it with equal parts of starch powder, but used in full strength the disagreeable sensations soon disappear and are succeeded by a comfortable feeling of warmth and gentle stimulation. In ulcers whose edges are very much thickened and indurated a preliminary softening with wet dressings of aluminium acetate is advisable.

In view of the simplicity and efficacy of this method of treatment, the author thinks that it should always be given a trial, and especially that no surgical measures should be resorted to until it has been found that no improvement can be effected by this means.

**Ichthyol** is a remedy, states J. N. Baker,<sup>1</sup> Clearwater, Fla., which is winning for itself increased confidence in the treatment of *tuberculosis*. It proves helpful not only to the diseased lung, but also to the stomach, aiding digestion and preventing undue fermentation. It may be administered either in solution or in capsules. The former is probably the preferable method, giving, of a 50 per cent. aqueous solution, as an initial dose, 2 or 3 min. freely diluted, and gradually increasing to 8 or 10 min.

**Bromides** if long continued in epilepsy bring about a bromide intoxication, due to the enormous doses needed to subdue the attacks (2 dr. to 4 dr. per day). Richet and Toulouse<sup>2</sup> thought to render the constitution more susceptible to the action of the bromides by first depriving it of chloride. The appetite of the cells for the therapeutic alkaline salts ought to be greater on account of the absence of the food alkalis.

Thirty epileptic women were submitted to a food régime especially poor in chlorides. The diet consisted of milk, 1,000 parts; meat, 300; potatoes, 300; flour, 200; eggs, 70; sugar, 50; coffee, 100; butter, 40—equivalent to 2,700 calories and 300 grn. of nitrogen. In ordinary feeding the NaCl constitutes about  $2\frac{1}{2}$  to 4 dr. a day. Nourished as above, doses of 30 grn. of bromides a day caused disappearance of the epileptic seizures, no matter what their former frequency had been. In exceptionally light attacks occurring under this régime the dose of bromides was increased to 45 or 50 grn., which entirely stopped them.

Certain of these patients were without

<sup>1</sup>N. Y. Med. Jour., LXXI, p. 47.

<sup>2</sup>Therap. Monatsh., XIV, No. 1.

<sup>1</sup>Jour. of Tuberculosis, I, No. 1.

<sup>2</sup>Rev. de Thérap. méd.-chir., LXVI, No. 24, p. 843.



attacks for six months, but a return to the ordinary diet, not omitting the usual dose of bromides, caused the return of the attacks, thus showing their relation to the relative quantity of chlorides present during the medication.

This food régime has no harmful effect on the general nutrition, but the dosage of bromides must be carefully watched under it, because the bromides then more easily produce bromism even in weak doses.

**Protargol** has been recommended by Kopp<sup>1</sup> as an efficient and safe prophylactic against *gonorrhœa*, but it has been open to the objection of its sparing solubility in water. The same author now publishes a new method of preparation which overcomes the difficulty and makes universal application of the remedy possible. The protargol is to be triturated with an equal weight of glycerin and then enough lukewarm water added to make a 20-per-cent. solution. A few drops of this solution instilled into the fossa navicularis after a suspected coitus makes an efficient safeguard against infection without any unpleasant irritation of the urethral mucous membrane.

**Tropacocaine** has been used as a corneal and conjunctival anesthetic by Dr. Richard Hilbert, of Sensburg, his investigations being embodied in a paper read at the second meeting held in Danzig of the Association of Oculists of Eastern and Western Prussia. Among the advantages claimed for tropacocaine over cocaine are, that it causes absolutely no cloudiness of the corneal epithelium, even when extensively used; it acts as a mild antiseptic, and is not prone to decompose, hence is not likely to be the cause of a secondary infection of corneal ulcers or wounds; it causes no increase of pressure or pupillar enlargement; it is but slightly toxic, and gives rise to no general intoxication in small doses.

The author employed the remedy in the form of a 5-per-cent. solution, a few seconds after the instillation of which a decided hyperemia of the conjunctiva set in, leading to the inference that the remedy paralyzes not only the terminals of the sensitive nerves, but also of the vasomotors. Corneal anesthesia sets in a few seconds later; the conjunctiva resists anesthetization longest, and the anesthesia appears to be less intense than that of the cornea. The removal of foreign bodies from the eye is rendered exceedingly easy by means of the tropacocaine, which has also enabled the author to perform iridectomy without assistance.

The impression gained from the investigations made is that tropacocaine may fully and advantageously replace cocaine, so far as its anesthetic action is concerned, because this is more rapidly exerted; and because it leaves the cornea intact, is antiseptic, does not increase intraocular pressure or mydriasis, and is far less toxic. To obviate or lessen any tendency toward hyperemia, sodium chloride may be combined with the tropacocaine as in the following solution:

Tropacocaine Hydrochlorate...	15 grn.
Sodium Chloride .....	3 grn.
Distilled Water .....	5 fl. dr.

**Cacodylates** are recommended to be prescribed in accordance with the following directions by Dr. Armand Gautier.<sup>1</sup> As a rule, the cacodylic acid should be given in the form of a neutral sodium cacodylate or calcium cacodylate, employed alone, in hypodermic injections, varying from 0.05 Gm. to 0.15 Gm. per day ( $\frac{3}{4}$  to 2 $\frac{1}{4}$  grn.). The hypodermic administration gives to the drug its full efficiency and avoids all the inconveniences of ordinary arsenical medication. Thus given, the breath and perspiration do not take on an alliaceous odor, nor does the stomach become intolerant, or intestinal troubles complicate. Given by mouth or rectum, in the same doses, a distaste and even intolerance may be established in a few days, ushered in by a feeling of weight or cramps in the epigastrium, accompanied by the disagreeable alliaceous odor of breath and perspiration. Prolonged use may cause albuminuria. The alliaceous odor is due to fermentative decomposition of the drug in the stomach, forming the cacodylic oxide characterized by that odor. This is a volatile but toxic substance, which is eliminated by skin and lungs, but not without first setting up considerable irritation to stomach and intestines. Rectal administration, while not accompanied by this odor to the same extent, produces the same kind of irritation, which, however, is much less than from Fowler's solution.

**Strontium Bromide** is again recommended by J. V. Laborde<sup>2</sup> as preferable to the bromides of sodium and potassium for the treatment of *functional epilepsy*. He claims that strontium bromide is the equal of potassium bromide in its elective action on the excito-motor cell; that it has real physiological and therapeutic activity, and that it has the advantage over potassium

<sup>1</sup>Bul. de l'Académie de Méd., 1899, No. 37.

<sup>2</sup>Bul. gén. de Thérap., CXXXVIII, p. 938.



bromide of being better tolerated by the organism, so that the dose may be easily and rapidly increased to the point of efficacy; i. e., to overcome the epileptic attacks, functional in origin and nature, even when the most inveterate. The matter of tolerance is the one of greatest importance, since intolerance of the potassium salt is the one thing which has stood in the way of its use as the preferable medicine. Dr. Ch. Féré has demonstrated, in support of Laborde's contention in favor of the tolerance for strontium bromide that as much as 14 to 15 Gm. (217 to 232 grn.) of it have been tolerated by the patient without grave inconvenience. This much could never be given of the potassium salt without great danger. It is thus possible rapidly and easily to check attacks of *haut mal*. The writer regards 60 grn. at once as an efficacious initial dose, which may be raised to  $2\frac{1}{2}$  or 3 dr. a day

**Trional** being insoluble, like sulfonal, in water when given in ordinary form, M. Pouchet<sup>1</sup> has drawn attention to a method of administration which would avoid the inconstancy of results from the use of both drugs, due most likely to the fact of their insolubility. He states that trional is soluble in 1 : 20 of oil of sweet almonds at 68° to 77° F. It may be given as a potion in the form of an emulsion. He recommends the following:

Trional.....	15 grn.
Expressed Oil Almonds.....	5 fl. dr.
Sugar.....	2 dr.
Gum Tragacanth... }	of each, 3 grn.
Gum Arabic..... }	
Orange-flower Water.....	$2\frac{1}{2}$ fl. dr.
Cherry-laurel Water.....	30 min.

This makes an emulsion which may be taken in half a glass of water or milk.

If it is desired to employ the emulsion as a rectal injection, use the following form:

Trional.....	8 to 15 grn.
Oil Sweet Almonds.....	$2\frac{1}{2}$ to 5 fl. dr.
Yolk of 1 egg.	
Water.....	$4\frac{1}{2}$ fl. oz.

Though trional is soluble in three parts of paraldehyde, the author does not recommend the combined administration because of differences in effects when thus administered in experiments on guinea-pigs.

**Arsenic, Antimony and Phosphorus** have in common the property of producing a fatty degeneration of the liver when present in the animal organism in toxic amounts. In addition, the researches of

Salkowsky have shown that there is a notable decrease in the amount of glycogen, which fact is demonstrable long before the fatty change in the liver tissue and even before the animal gives any evidence of indisposition. It is well known that the glycogen is to be regarded in the light of a reserve store of energy, and that under conditions of great stress, such as exposure to cold or fever, or during extreme bodily labor, it is diminished in quantity, but the causation of this toxic decrease is harder to explain. A further observation of Rosenbaum's, that in arsenic poisoning the hourly rectal temperature drops steadily, still more obscures the matter, since this points to a reduction of bodily metabolism, and is in marked contrast to the rapid disappearance of the glycogen. The transformation of the glycogen into some nearly related body—such as lactic acid, for example—has therefore been suggested as a possible explanation of the phenomenon.

These considerations induced Morishima<sup>1</sup> to undertake a series of experiments with a view of determining the normal relations of lactic acid in the animal organism, and, regarding the lactic acid coefficient of the liver of well-nourished animals, whether paralactic acid is present in the livers of animals undergoing rapid diminution of their glycogen, such as takes place in arsenic poisoning, and concerning the lactic acid present in the blood and other tissues. His conclusions may be summed up as follows:

1. Sarcocollactic acid is a constant constituent of the fresh normal liver, kidneys, the walls of the gastro-intestinal tract, and the blood.

2. After death the liver-lactic acid is increased in amount, probably at the expense of the glycogen. The larger part, however, of the lactic acid thus formed is of fermentative origin.

3. During life the lactic acid also undergoes increase in arsenic poisoning, but when thus formed it is always sarcocollactic acid and is never fermentative; a relationship between this and the diminished glycogen of the liver is very improbable.

**Intestinal Antisepsis** still continues to create much discussion in the profession. Dr. J. F. Purviance,<sup>2</sup> of Steubenville, Ohio, is among those who believe that the internal use of antiseptics is of decided advantage in correcting septic conditions of the intestines. He says that while some of these remedies are too poisonous to be

<sup>1</sup>*Bul. gén. de Thérap.*, CXXXVIII, p. 809.

<sup>1</sup>*Archiv f. exper. Pathol. u. Phar.*, XLIII, Nos. 3 and 4.  
<sup>2</sup>*Med. Standard*, XXIII, p. 17.

safe and others too easily decomposed to exert any advantageous action within the bowels, he is still encouraged in the belief that any sweeping denial of benefit from their use is unjustifiable. Among substances that are neither dangerously toxic nor subject to changes that destroy their utility, he mentions bismuth subnitrate. He holds that this is a most appropriate remedy in typhoid fever and bowel irritations. Calomel is not classed with potent antiseptics, but the results of its use have long proved it to be of special value. He thinks that the chief cause of the advantage is the release of the chlorine within the alkaline bowel. Whatever its method of acting, it is certainly efficient where not contraindicated. Benzo-naphthol is so slightly altered in the stomach that it carries its antiseptic power into the bowels and thereby promises well for the future. The author holds that the time of administration of an intestinal antiseptic is of extreme importance because of the chemical changes likely to occur in the stomach. If basic salts are given when no digestion is going on their identity may be preserved until they have reached the bowels. In this way sulphocarbolates can be used. The same is true of the sulphites that are known to possess germicidal power. An acid stomach would release the sulphurous acid too soon and destroy the efficacy of the remedy. In septic conditions of the intestines there is enough acid developed to release the sulphurous acid slowly where its antiseptic action is desired, providing it runs the gauntlet of the stomach safely. If administered at the proper time, either sodium sulphite or magnesium sulphite will soon so sterilize the bowels as to destroy every vestige of fecal odor and check all fermentation. Agents that are destroyed by alkaline conditions of the stomach should be given at a time when they are protected by the presence of the normal acid of the stomach. Sulphuric and hydrochloric acids are both efficient intestinal antiseptics if given at a proper time.

Another class of antiseptics, continues the author, are important as intestinal remedies, not so much from a chemical change within the stomach that liberates and neutralizes their qualities prematurely, as by the speedy absorption that occurs after they are swallowed. This applies to such articles as carbolic acid, creosote, salol, thymol, eucalyptus, etc. To obviate this difficulty, remedies of this class have been placed in capsules that were impervious to the gastric secretions, hoping thereby to liberate the article only after it reached the

bowels. From some cause this ingenious effort has not proved a success.

One other factor to be mentioned in this treatment of enteric sepsis is the removal of all accumulations. This mechanical antiseptic treatment is as important in the bowels as are the sponge, soap, and water in cleansing a superficial wound. Laxatives and enemas are resources of the utmost value as a preparatory treatment to the use of other antiseptics.

Intestinal antiseptics are, therefore, the author concludes, to be mentioned, first, as supplying a greater want than has been commonly recognized; secondly, their action can be more confidently depended upon when used in their proper order, at proper times and in proper quantities. Always the first in order should be cleanliness. Every antiseptic, whether external or internal, should not be used until the parts are well cleansed. This accomplished within the bowels—not by drastic purgatives—but by tonic laxatives and enemas, the use then of the proper agents will remove the cause of many evils resulting from intestinal sepsis.

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**Dionin** has been tested therapeutically in an extended series of *painful affections* by Prof. von Stoffella,<sup>1</sup> of the Vienna Polyclinic, and with uniformly excellent results. In thirty cases of tracheitis, in which the constant irritation caused cough day and night, the best results were secured by combining sodium bicarbonate with the dionin, and, if fever existed, adding also a suitable quantity of quinine hydrochlorate. The combination was effective in every case, the dose of the dionin being from 0.02 to 0.03 Gm. ( $\frac{1}{4}$  to  $\frac{1}{2}$  grn.) thrice daily. In many cases of acute bronchitis, dionin was similarly certain and prompt in its action, the cough-irritation, severe stitches in the side, pains in the neighborhood of the diaphragm, and sensation of rawness in the chest being relieved. In chronic bronchitis the writer recommends a combination of 1 Gm. (15 grn.) of sodium bicarbonate, 0.03 to 0.05 Gm. ( $\frac{1}{2}$  to  $\frac{3}{4}$  grn.) ammonium hydrochlorate, and 0.02 to 0.03 Gm. ( $\frac{1}{4}$  to  $\frac{1}{2}$  grn.) of dionin as the most suitable, three such powders being given daily. In pulmonary emphysema, with bronchitis and slight myocarditis, a mixture of quinine hydrochlorate and caffeine, each 0.2 Gm. (3 grn.) with 0.02 to 0.03 Gm. of dionin is recommended as affording the most satisfactory results.

The dionin was also used in a large num-



ber of valvular affections of the heart, there being no functional disturbances, such as irregularity, arrhythmia, etc., in any instance.

In pulmonary phthisis the author substantiates the statement made by Schröder that "dionin suspended or checked the cough-irritation and obtained a better and frequently prolonged sleep; the patients felt better and were quieter. In many cases the action of dionin was decidedly more satisfactory than that afforded by codeine in equal doses, it affording the results uniformly expected from morphine in equal doses, without, however, affording the unpleasant by-effects caused by the latter." In pediatrics, the author believes that dionin will assume a commanding position. No other remedy has given such satisfactory results in whooping-cough as dionin and antipyrine in combination. In severe cases of spasm of the glottis, and in the annoying cough-irritation accompanying inflammation of the respiratory passages, good results are certain. As in the treatment of the numerous cases there was not noted an unpleasant action in the intestinal tract, the remedy was also used in intestinal diseases without fear. The pains consequent on swallowing hot food or hard pieces of food are promptly relieved by doses of 0.03 Gm. ( $\frac{1}{2}$  grn.) of dionin dissolved in 15 drops of cherry-laurel water. In gastric round ulcer, with acid hypersecretion, the writer has successfully used a mixture of sodium bicarbonate and magnesia, of each 10 Gm. ( $2\frac{1}{2}$  dr.) with 0.5 Gm. (8 grn.) of dionin, as much of the powder as would go on the point of a table-knife being given thrice daily after meals. In colic, whether due to biliary calculi, or of intestinal origin, a 4-per-cent. solution in cherry-laurel water was found to be effective. In two cases of diabetes mellitus dionin in doses of 0.03 to 0.05 Gm. ( $\frac{1}{2}$  to 1 grn.) per day was well borne, and the polyuria and percentage of sugar were lessened.

The analgesic action of dionin was also made manifest on the introduction of tampons saturated with a 2- to 3-per-cent. dionin solution into the vagina. The severe pains accompanying parametritis, perimetritis, and inflammations of the adnexa were relieved in an hour at the most; the tampons were left in place for a day, but the analgesic action extended throughout the following day, thus making it necessary to insert tampons every other day only.

The dionin was also used in curing two cases of morphine habit by withdrawal. In both cases the daily amount of morphine taken was greatly reduced, and all symptoms pointed to a speedy cure. The dionin

injections used contained each 0.03 Gm. ( $\frac{1}{2}$  grn.), and were made twice or thrice daily, in addition to blind injections and one of morphine.

In addition, the stomach was periodically and methodically washed out with a 2-per-cent. sodium bicarbonate solution in order to avoid the occurrence of gastroxynsis, which, it has been stated, may be caused by morphine or its derivatives.

**Scopolamine** and other mydriatic alkaloids are commented upon by Dr. Frank Woodbury,<sup>1</sup> of Philadelphia, in their relationship to each other and the effects likely to occur from their substitution for each other in plasters. He cites a number of authorities regarding the therapeutic properties and physiological effects of these alkaloids, summing up the differences between atropine and hyoscine or scopolamine as follows:

ATROPINE (C <sub>17</sub> H <sub>23</sub> NO <sub>3</sub> )	HYOSCINE (SCOPOLAMINE: C <sub>17</sub> H <sub>21</sub> NO <sub>4</sub> )
Is a crystalline solid.	Is a liquid.
Is a stimulant.	Is a sedative.
Is much less toxic.	Very poisonous.
Causes febrile symptoms.	Causes fatigue and drowsiness.
Accelerates the pulse.	Slows the pulse.
Powerfully stimulates respiratory center.	Respiration unaffected, or becomes slow and irregular (Cheyne-Stokes).
Does not paralyze pharynx or larynx.	Paralyzes throat muscles.
Acts on spinal cord like strychnine.	Depresses spinal cord.
Paralyzes motor nerves.	Relaxes voluntary muscles.
Increases cerebral activity.	Diminishes cerebral activity.
Is a stimulant and not hypnotic.	Is a calmant and hypnotic, not a stimulant.
Increases intra-ocular tension.	Does not affect intra-ocular tension.
Is strongly mydriatic.	Is an active, but uncertain, mydriatic.
Increases electric excitability.	Does not increase electric excitability.
Causes death by convulsions and failure of respiration, or by coma and asphyxia.	Causes death by paralysis and asphyxia.

**Codeine**, in order that its full effects may be developed, states Dr. Albert Fränkel,<sup>2</sup> of Badenweiler, must be given in larger doses than those generally administered, and he claims that these doses, in view of the comparatively low toxicity of codeine, need give no concern. The practicing physician is still dominated by the first pharmacological statements that codeine is one-third the strength of morphine, and that its dose is therefore about 0.03 Gm.

<sup>1</sup>Med. Bulletin, XXI, p. 452.

<sup>2</sup>Münch. med. Woch., 1899, No. 24, 25, and 46.



( $\frac{1}{2}$  grn.). This view does not, however, take into consideration the fact that codeine is from ten to twenty times less toxic than morphine. The author begins with doses of 0.04 Gm. ( $\frac{2}{3}$  grn.) in phthisical cases, and then, according to requirements, gives from 0.04 to 0.06 Gm. ( $\frac{2}{3}$  to 1 grn.) three to four times daily, without any symptoms of habituation becoming apparent. The maximum single dose is 0.1 Gm. ( $1\frac{1}{2}$  grn.); per day, 0.4 Gm. ( $6\frac{1}{2}$  grn.).

The author also states that whenever and wherever a remedy is required in cough, morphine should be avoided altogether, and only codeine used, as this is almost without action on the stomach and intestines, and avoids the great danger of habituation.

**Sodium Soziodole** is used in the treatment of *soft chancre* by Grivzoff,<sup>1</sup> who rejects dermatol and xeroform; he finds, also, that sodium soziodole is a better specific even than europen in washing out the bladder. The remedy is quite free from odor, and is nontoxic. At first it should be mixed with some inert powder, and it is apt to cause a smart, burning pain when applied, but after a few days the affected parts grow less sensitive, and the pure preparation may be applied freely.

**Morphine Poisoning** with serious symptoms followed the taking of only a little more than a grain of the hydrochlorate, in divided doses of less than one-fifth of a grain every four hours, by a phthisical patient of Dr. H. C. Colman,<sup>2</sup> of Broughty, Ferry, N. B. Patient was being treated for hemoptysis. At 4 o'clock in the morning the doctor was sent for, and on arrival found his patient unconscious, the pupils being moderately contracted, but not to pin points. His skin was warm, and of an earthy color, and he was sweating profusely; his lips were extremely pale. The conjunctival reflex was lost. Respiration had almost ceased; at intervals there were one or two gasping respirations, and then a long period of quiescence. The pulse was 90 to 100, and full but not very soft. The doctor found from the wife that patient had taken four doses of the medicine ordered, and had insisted on taking a dose of a mixture containing morphine that had been previously prescribed, the last dose being taken at 11 P. M. At that time his wife said he seemed to be drowsy, but was quite sensible. The noise of his breathing awakened and alarmed her about 3.45 A. M.

There seemed to be no doubt that he was

suffering from opium poisoning, and, seeing that five hours had passed since the last dose had been taken, it seemed useless to wash the stomach out. At 4.10 A. M. artificial respiration was begun, and he received  $\frac{1}{100}$  grn. each of strychnine and atropine hypodermically. There was improvement in the pulse after this, the sweating ceased, and the pupils dilated a little. Artificial respiration had to be continued, as if stopped the cyanosis, which was not present at first, became worse, and the pulse-rate quickened. From 5.30 A. M., with the assistance of Dr. Bruce, artificial respiration was continued until 7.45 A. M. In spite of whisky, 30 min. hypodermically twice, and continued artificial respiration, there was no improvement, but rather the reverse. The failure of respiration seemed to be the most urgent, and the author determined to try the inhalation of strong ammonia. A bottle of ammonia (sp. gr. 0.88) was held to his nose for two artificial respirations. The patient became almost black in the face, and his body gave a convulsive heave. The cyanosis passed off in a few minutes after  $\frac{1}{100}$  grn. of digitalin, followed shortly by  $\frac{1}{50}$  grn. of strychnine and  $\frac{1}{100}$  grn. of atropine. From this time on there was some improvement—namely, when artificial respiration was stopped, he took a few good breaths, though they soon ceased. The administration of ammonia was repeated, holding the bottle further from his nose, with much the same effect as before, though milder. At 7.45 A. M. he began to breathe naturally, and there was an occasional flicker about his eyelids. The doctors were now able to obtain some coffee, and poured 10 fl. oz. of very black coffee with  $\frac{1}{2}$  fl. oz. of whisky down the stomach tube, which was followed by very rapid improvement. At 8.30 patient was of a natural color and breathing steadily; although very dazed, swallowed some beef-tea from a spoon about 9 A. M. At 10:30 A. M. he had practically recovered, except that his accommodation seemed paralyzed, and his tongue and throat very dry, doubtless from the atropine.

The doctor is quite sure that there was no attempt at suicide and no mistake in the amount taken.

The points of interest in the treatment were, first, the marked beneficial effect of inhalations of strong ammonia, a means which the author has not seen recommended before, but which he will certainly try again if occasion offer. Secondly, the well known stimulant and antidotal effect of strong coffee, which in this case was not used till very late, owing to inability to obtain it. Thirdly, that  $\frac{1}{50}$  grn. of atropine in two

<sup>1</sup>*Epit. Brit. Med. Jour.*, No. 2037, p. 8.

<sup>2</sup>*Brit. Med. Jour.*, No. 2034, p. 1731.

doses gave very marked symptoms of belladonna poisoning.

The patient had no return of the hemoptysis, and was very soon at work again.

**Blennorrhagia** has received from Vogl,<sup>1</sup> of Munich, a critical study as to the results obtained from its modern treatment in the military hospital of Munich since 1882, leaving out of consideration all but specific treatments.

In 1893 patients were treated by Neissar's method and given injections of silver nitrate 1:5000. In 1894 potassium permanganate, 1:4000; sodium sulphophenate, 1:180; and later silver nitrate 1:3000, were used. In 1897, protargol was the remedy.

Before the employment of these remedies the average duration of treatment was 45 days; since their introduction, 45 to 47 days. In 1896-1897, Neisser employed various silver salts and lowered the average by five days, but in 20 of the cases there was recurrence. In 1898, when the nitrate, the permanganate, and protargol were all used, the average was reduced to 42 days, but there were 7 cases of recurrence. At best reduction averaged but 5 days.

**Whooping-cough**, having no specific or antidotal therapy, is stated by a contemporary<sup>2</sup> to be still restricted to symptomatic or physiologic remedies. So far as one can judge, empirically or clinically, this journal continues, the best of these are the sedatives, the bromides, and bromoform, including also antipyrine, although inhalations and belladonna and quinine also are sometimes helpful.

Referring to the use of bromoform in the same disease, Feer gives it to parents in pure form, 10 Gm. (2½ dr.) at a time in a colored bottle, with the directions to give the child three times a day as many drops as he is years old, plus two. Instancing the case of a five-year-old child, the dose would be 7 drops three times a-day for four days, and then four times a day. If no improvement is noted in a week, add one drop, and by the end of another week add another drop. Older children should not take over 50 drops during the day, and adults not over 70 drops to 80. It should be taken after meals in water, milk, or the yolk of an egg, from a spoon. Parents should be warned not to leave the bottle in reach of the children. Feer has observed a case in which a child three years of age took 4

Gm. (2 fl. dr.) at once, but the coma and cyanosis induced by the intoxication soon passed away, showing the slight toxic properties of the bromoform.

**Eczema** and its treatment was the subject of the latest Ingleby lecture given by Dr. R. M. Simon<sup>1</sup> at Mason College, Birmingham, England. He stated that notwithstanding the frequency of the occurrence of this disease, we do not yet know whether we have to deal with an outward manifestation of a dyscrasia, or with an accidental disturbance of the skin itself. While many cases are easily cured, a large proportion are quite difficult to manage. The lecturer held that there is always some constitutional condition which underlies this disease. For purposes of constitutional treatment cases naturally divide themselves into acute and chronic, and these, modified by the age of the patient, differ widely in their needs. The drug par excellence for acute eczema is antimony, which Malcolm Morris has done much to popularize in dermatological practice. He says:

"It is especially indicated when the arterial system is in a state of great tension. Small doses of the wine of antimony quickly relieve this, and, as a consequence, subdue or markedly reduce the local inflammation. In acute eczema, if the patient is otherwise healthy, I generally begin by giving 10 to 13 drops of the wine, repeating the dose an hour later, and again two hours afterwards if there be no abatement of the symptoms. The administration is continued at gradually lengthening intervals, while the dose is diminished till a limit of 6 drops is reached. This should be continued three times in the twenty-four hours as long as the acute symptoms persist. In the early stages of dermatitis herpetiformis, erythema multiforme and, generally speaking, in all forms of cutaneous affection, when the inflammatory phenomena are very prominent, antimony is most useful."

This line of practice is by far the best in acute eczema and urticaria, states the author, and he generally combines with the wine of antimony small doses of sodium sulphocarbolate. This treatment applies equally to adults and to children, but in treating the latter he watches them very carefully, and of course materially diminishes the doses.

In the erythema and urticaria of acute cases, ichthyol has been of great value. He

<sup>1</sup>*Lyon médical*, XCII, No. 53.

<sup>2</sup>*Four. Amer. Med. Assoc.*, XXXIV, p. 155.

<sup>1</sup>*Birmingham Med. Rev.*, XLVII, p. 1.



orders 3 min. twice a day, after meals, in capsules.

In treating acute cases meat should be avoided and the patient fed on milk, bread, and vegetables. Alcohol should only be given to the old and feeble, and then in concentrated form as whisky. Since the acute form lasts but a few days, this drastic treatment is of short duration.

In local chronic eczema, with thickening of the skin, no drugs are so useful as pilocarpine and arsenic. In one case the author had used first  $\frac{1}{8}$  and then  $\frac{1}{6}$  grn. of pilocarpine subcutaneously, twice a day, giving in all 110 injections; although at the beginning the case seemed hopeless, there was complete recovery. In acute eczema arsenic is harmful, but it is of the greatest value in the treatment of subacute, and still more in chronic cases, especially when there is general diffused or even localized thickening of the cutis. Arsenic is best administered in gradually increasing doses of Fowler's solution. From 3 to 5 drops may be given three times a day, and increased drop by drop until  $\frac{1}{2}$  fl. dr. is being taken per day. If diarrhea or irritation of the eyelids occurs, this treatment must be discontinued. In treating subacute cases, iron, cod-liver oil, and other remedies that improve general nutrition, are indicated. Nearly all so-called gouty cases are best treated by improving the digestion, and quite 75 per cent. derive great benefit from having the diet regulated and taking three times a day, a half hour before meals, such a mixture as the following:

Diluted Hydrochloric Acid.....	10 min.
Tinct. Nux Vomica.....	5 min.
Syrup Orange.....	30 min.
Water.....	to make 1 fl. oz.

**Dysentery** under magnesium sulphate treatment has been found to give far better results than when the old-fashioned ipecac treatment has been pursued. F. A. Rouget,<sup>1</sup> physician to the Port Louis jail, Mauritius, lately gave each method a fair trial, and the results are of great practical interest. Taking his cases in consecutive order from January 1, 1898, to May 15, 1898, he had 41, 6 being severe and 35 mild. These were put on ipecac, followed by bismuth salicylate, salol and opium. Out of the 41, 3 died, 30 recovered under his care, and 8 were discharged from jail, their terms having expired. None of the 8 were improved. On May 15 he began the treatment of new cases with magnesium sulphate, followed by bismuth salicylate and benzo-naphthol.

All cases that occurred up to March 31, 1899, were put on this new treatment. The number was 50, 15 being severe and 41 mild. Of these cases not one died; 2 completed their sentences before complete recovery, but left improved, and all the rest made prompt recoveries. The death-rate during the time the first 41 were treated had been the steady average of the jail prior to that time. The new treatment brought it down from 8 per cent. to nothing.

Dr. Rouget says that in chronic dysentery the magnesium sulphate treatment does not appear to be of much account. It is only in acute cases that it proves valuable. He states that the magnesium sulphate was given in doses of from  $1\frac{1}{2}$  to 2 dr., with 10 min. of aromatic sulphuric acid and some cinnamon water and syrup. The result of the treatment was in all cases remarkable. In from eighteen to thirty-six hours the dysenteric stools entirely disappeared: soft yellowish feces were passed instead, and in a few days the cure was complete. During convalescence he gave three times a day a powder composed of 15 grn. of bismuth salicylate, and 10 grn. of benzo-naphthol, to which 3 or 4 grn. of Dover's powder were sometimes added.

In addition to this treatment, too much attention cannot be paid to the diet, which should essentially be a milk diet. Any deviation from it is likely to materially interfere with recovery, and in not a few instances relapses occurred among the cases under his care owing to the Indian patients eating rice and curry.

Magnesium sulphate should be continued for some days after the stools have ceased to be dysenteric. Some relapses he attributes to his stopping the treatment too soon. In every case of relapse, on the magnesium sulphate being resumed and on subjecting the patient to the strictest supervision, the character of the stools rapidly improved and recovery ensued.

**Do Books Spread Disease?**—The Albright Public Library has been closed by order of the Scranton (Pa.) Board of Health, which announces an epidemic of scarlet-fever and diphtheria in the city. It is the opinion of the board that the germs of this disease are carried from house to house by circulating libraries and so in the hope of stopping the epidemic this radical step was taken. Members of the health board said that they had received information from a western city that at least one case of scarlet-fever had been traced to books secured in a circulating library.

<sup>1</sup>*British Med. Jour.*, No. 2020, p. 1413.



# The Prescription

We wish to have our readers use this department with the utmost freedom. Any question about the prescription or about any substance used in prescriptions comes within its range. We shall do our best to find correct answers for all, and if we fail for lack of information at hand, some one of our readers may be able to give the right reply. On questions of therapeutics or practice we shall not attempt to give any opinions of our own, but find for the questioner what the best available authorities on such subjects have to say upon them. Let every reader resolve his doubts about compatibilities, doses, latest remedies, best methods of administration, dangers of remedies, etc. Send in favorite prescriptions and let others be benefited by what you have discovered. We shall give full credit for all such information. As some persons do not care to have their names appear as the authors of queries, we will refrain from giving names in this connection when requested to do so. Sometimes it is an advantage to have the writer's name published, and in such cases we hope that over diffidence will not interfere with the right.

**J. D. E.**, of Vermont, after reading the editorial on "Carbolic Acid, and Its Antidotes," in the December, 1899, number of the ARCHIVES, wishes to know what effect alcohol will have on the antiseptic qualities of carbolic acid. He thinks that if the latter is so far changed in its physical properties that it will not harm the tissues of the body, it may be so much changed that it will no longer have power to destroy bacteria. In the *Therapeutische Monatshefte* for March, 1890, Gottstein, following Koch and Wolffhügel, calls attention to the fact that carbolic acid when mixed with alcohol has no more antiseptic power. The inference of J. D. E. appears therefore to have been shown to be a fact nearly ten years ago.

**E. C. F.**, of Pennsylvania, wishes to introduce POTASSIUM IODIDE into the system by external application in cases in which he does not care to give the remedy by the mouth on account of intolerance. He asks us to refer to reports of cases in which remedies have been administered successfully in this way by aid of wool-fat as an ointment base. He has received some literature on lanum (*adeps lanæ hydrosus*, Merck), and now seeks further information through the ARCHIVES. In the *Aerztliche Rundschau*, No. 52, p. 825, we learn that Bachmann, after rubbing an ointment containing 10 per cent. of potassium iodide in wool-fat into the skin, detected iodine in the urine in less than forty-five minutes. For fourteen days after the application the patient's urine contained iodine. Dr. Guttman, about a year later, published a report of experiments in which he confirmed Bachmann's claim, but showed that lard had the same power of permitting the passage of medicaments from itself, through the skin, and into the body. The exact capacity of the skin for such absorption has not been determined so far as we can ascertain. Lanum is superior to lard for such a purpose not because it can hasten absorption of the drug,

but because it never decomposes, harbors no bacteria, produces no irritating substances, contains nothing that can decompose the drug itself, and by absorbing a large amount of water can hold a larger amount of the remedy, thus obviating very frequent applications. Lard has none of these good qualities, and, by becoming rancid, tends to decompose remedies that may be mixed with it. The respective solubilities, as determined by Dietrich, should be 105 for lanum and 15 for lard. Petrolatum and like mineral preparations have an exceedingly small capacity for water, and are, therefore, unfit to use with remedies for external use that are to be absorbed.

**W. B. A.**, of Pennsylvania, may be interested in the following, as bearing somewhat on a query previously answered: VOLATILE OIL OF BETULA is about identical with the oil of wintergreen, both being official in the Pharmacopœia. Betula, or birch, has for many years supplied nearly all the wintergreen oil of the market, except that made synthetically in the laboratory. The synthetic oil is known as methyl salicylate, its chemical name. True wintergreen oil and true birch oil are methyl salicylate mixed with a terpene. Probably their chief virtue lies in the methyl salicylate which they contain, and this has been found to be exceedingly useful in rheumatism and rheumatic and neuralgic affections. Compounds of methyl salicylate with oleoresin of capsicum and menthol, of oil of cloves and menthol, of mustard oil and menthol, etc., have been successfully used as compound liniments of methyl salicylate. When mustard oil is used the quantity should not be large, as it is so volatile and its odor so strong that but few patients are willing to endure it.

**S. E. F.**, New York, wishes to know if ICHTHYOL has been tried in the treatment of *hemorrhoids*, and, if so, with what results. Dr. L. D. Bulkley, of New York city, some time ago reported his experi-

ence with ichthyol in hemorrhoids. He gave, by the mouth, 10 to 15 drops, in capsules, three times daily, and found that through its action on the liver and intestines it cured nearly every case tried. He is reported as saying that he looks upon its internal use for this trouble as nearly a specific.

**Schering & Glatz**, of New York, call attention to the abstract on "Formaldehyde as a Disinfectant," which appeared in the *ARCHIVES* of January, 1900, on page 18, where the statement is made that "a proportion of about 1 Gm. of liquid formaldehyde for every cubic meter of air space" was used. This, they state, must be a mistake, as this quantity would not be enough to effect the results claimed. The passage quoted should have read "absolute formaldehyde for every cubic meter of air space." Solution of formaldehyde, at its full strength, is only 40 per cent., and the evaporation of 1 Gm. of this could not supply more than  $\frac{1}{10}$  of a gram of absolute formaldehyde, even if all of it were likely to be available.

In the abstract referred to, in Dr. Fairbank's experiments trioxymethylene was used as a source of the gas and not the solution. Trioxymethylene is also known as polymerized formaldehyde.

Last month we gave a selection of prescriptions used in the diseases of women. Following is a selection that will be found useful in the treatment of genito-urinary diseases:

#### Gonorrheal Cystitis:

Sodium Bicarbonate.....1 oz.  
Borax.....2 oz.

Two teaspoonfuls in a quart of lemonade to be taken in the course of a day.

—BALZER, *Med. Record*.

#### Prostatorrhea:

Tinct. Nux Vomica.....1 fl. dr.  
Tinct. Iron Chloride.....3 fl. oz.

Twenty drops three times a day.

—GROSS, *N. Eng. Med. Monthly*.

#### Impotence, with Spermatorrhæa:

Tinct. Cantharides.....96 drops  
Tinct. Iron.....4 fl. dr.  
Water.....to make 2 fl. oz.

Teaspoonful three times a day in water.

—WOOD, *N. Eng. Med. Monthly*.

#### Dysuria from Uric Acid:

Benzoic Acid..... } of each, 40 grn.  
Borax..... }  
Water.....8 fl. oz.

Two tablespoonfuls every two hours.

—Canada *Lancet*.

#### Orchitis:

Iodine.....2 grn.  
Potassium Iodide.....1 dr.  
Distilled Water.....4 fl. oz.

Apply with a camel's hair brush as soon as acute symptoms have subsided.

—NIEMEYER, *N. Eng. Med. Monthly*.

Mercury Oleate.....90 grn.  
Morphine Sulphate.....4 grn.  
Oil Wintergreen.....1 fl. dr.  
Olive Oil.....to make 4 fl. oz.

Bathe with hot water night and morning, apply this after bathing, and then wrap the testicles up in absorbent cotton. —*Med. Bulletin*.

Calomel.....3 grn.  
Powdered Ipecac.....10 grn.

Take at once, and then apply the following ointment:

Ammoniated Mercury.....1 dr.  
Simple Cerate.....1 oz.

—McELROY, *N. Eng. Med. Monthly*.

#### Prostatitis:

Ichthyol.....5 to 12 min.  
Extract Belladonna..... $\frac{1}{4}$  grn.  
Cacao Butter.....to make 1 suppository

Use two or three such suppositories daily.

—*N. Y. Med. Journal*.

Tinct. Cantharides.....16 min.  
Simple Syrup.....4 fl. dr.  
Distilled Water.....12 fl. dr.

Teaspoonful every four hours during actual inflammation.

—RINGER, *N. Eng. Med. Monthly*.

Iodoform.....30 grn.

Cacao Butter and }  
Yellow Wax..... } to make 5 suppositories

Use two per day in chronic enlargement.

—MORETIN, *N. Eng. Med. Monthly*.

#### Spermatorrhæa:

Freshly Powdered Ergot.....15 grn.  
Powdered Nux Vomica.....3 grn.

Make into 10 powders and give one morning and evening after eating, when trouble is due to atony.

—*N. Y. Med. Journal*.

Extract Belladonna.....3 min.  
Powdered Belladonna.....3 grn.

Confection of Rose.....to make 10 pills

From one to three pills at bedtime, when due to spasm of the vesicles.

—SINETY, *Jour. de Méd. de Paris*.

#### Oxaluria:

Strychnine Sulphate.....1 grn.  
Diluted Phosphoric Acid.....2 fl. oz.  
Fl. Ex. Erythroxylon.....to make 6 fl. oz.

Teaspoonful three times a day.

—CHRISTIAN, *Therap. Gazette*.

**Urethral Pain:**

Morphine Hydrochlorate.....  $2\frac{1}{4}$  grn.  
 Atropine Sulphate.....  $\frac{7}{16}$  grn.  
 Distilled Water.....  $12\frac{1}{2}$  fl. dr.

Inject into the rectum (not the urethra) from  
 30 to 60 drops. —*N. Y. Med. Journal.*

**Irritable Bladder:**

Salol..... 2 dr.  
 Tinct. Hyoscyamus..... 2 fl. dr.  
 Infusion Buchu..... to make 6 fl. oz.  
 One tablespoonful three times a day.  
 —*Med. Record.*

**Chronic Cystitis:**

Guaiaicol..... 75 grn.  
 Iodoform..... 1 dr.  
 Sterilized Olive Oil..... 3 fl. oz.  
 For injection into the bladder.  
 —*N. Amer. Pract.*

**Specific Urethritis:**

Extract Hydrastis..... 1 grn.  
 Tannic Acid..... 2 grn.  
 Zinc Sulphate..... 7 grn.  
 Alum..... } of each, 8 grn.  
 Boric Acid..... }  
 Water..... 1 pint  
 Use as an injection.  
 —*TAYLOR, Cleveland Jour. of Med.*

**Acute Orchitis:**

Ammonium Chloride..... 2 dr.  
 Alcohol..... } of each, 2 fl. oz.  
 Water..... }  
 Apply as a lotion; for the subsequent induration,  
 apply twice a day.  
 —*MARSHALL, N. Eng. Med. Monthly.*

Tartar Emetic..... 1 grn.  
 Potassium Nitrate..... 1 dr.  
 Magnesium Sulphate..... 12 dr.  
 Distilled Water..... to make 6 fl. oz.  
 One tablespoonful every four to six hours.  
 —*ERICHSON, N. Eng. Med. Monthly.*

**Chronic Orchitis:**

Potassium Iodide..... 1 dr.  
 Potassium Bromide..... 3 dr.  
 Distilled Water..... to make 3 fl. oz.  
 Two teaspoonfuls every four hours.  
 —*GERHARDT, N. Eng. Med. Monthly.*

**Epididymitis:**

Extract Belladonna..... 1 part  
 Simple Ointment..... 20 parts  
 Apply once or twice a day.  
 —*NEUMANN, Med. Record.*

Powdered Opium..... 1 dr.  
 Camphor..... 30 grn.  
 Vaseline..... 1 oz.  
 Apply. —*TAYLOR, Med. Record.*

**Gonorrhea:**

Gallobromol..... 45 grn.  
 Distilled Water..... } of each, 28 fl. dr.  
 Glycerin..... }  
 Use as a urethral injection.  
 —*Jour. de Méd. de Paris.*

**Gonorrheal Dysuria:**

Sodium Salicylate..... 150 grn.  
 Extract Belladonna..... 5 grn.  
 Tinct. Orange Peel..... 75 grn.  
 Water..... 6 fl. oz.  
 A tablespoonful every two or three hours.  
 —*Le Progres méd.*

**NEWS NOTES**

A pamphlet has been recently issued by the Farbenfabriken of Elberfeld Company, 40 Stone street, New York, containing a copy of the Phenacetin patent and various decisions of the courts sustaining the patent in the United States.

While Dr. Howard A. Kelly, professor of gynecology in the Medical School of the Johns Hopkins University, was delivering a lecture on the evening of January 23, and exhibiting some rattlesnakes, he was bitten on the finger by one of them. Fortunately, the snake had exuded his venom in a previous unsuccessful strike, so that no untoward results followed.

The Viceroy of India, Lord Curzon, says an exchange, is said to be the latest convert to the claims of serum-therapy in the prevention of plague. He has recently been making a circuit of hospitals and segregation camps at Poona. In a recent address upon the subject he stated that the deaths among patients who had been treated with the serum amounted to only twenty per cent., while of those who did not receive the serum over eighty per cent. died. As a result of his faith in the preventive power of the serum, he and his entire family have been inoculated.

A special meeting of the St. Louis Medical Society was called for the afternoon of January 12, to take action on the death of Dr. Jos. C. Mulhall.

Dr. Bulkley will close his course of clinical lectures on Diseases of the Skin at the New York Skin and Cancer Hospital, Second avenue, corner Nineteenth street, New York city, with lectures on "Syphilis," on February 21 and 28, at 4.15 o'clock. The lectures will, as far as possible, cover the entire subject, from infection to the latest manifestations of the disease, and will be freely illustrated by cases, models, and plates. The lectures will be free to members of the medical profession on the presentation of their professional cards.

The American Committee of the International Medical Congress, to be held in Paris from August 2 to 9, 1900, in connection with the French Exposition, has been organized with Dr. Wm. Osler as chairman. All doctors of medicine are entitled to membership in this Congress by making the proper application and paying the sum of \$5. The secretary-general in Paris has instructed the American national committee to receive the applications of American physicians. Send full name and address, degrees, and any position of note held, together with the section of Congress to which the writer wishes to belong, to the American secretary, Dr. Henry Barton Jacobs, secretary, 3 W. Franklin street, Baltimore, Md.



# Book Notices

IMPERATIVE SURGERY is the title of a new book by Howard Lilienthal, M.D., attending surgeon to Mount Sinai Hospital, New York city. The work has been prepared for the practitioner of general medicine who rarely takes up a scalpel, for the specialists whose path seldom leads to the operating-room, and for the recent graduate who, though versed in the lore of books and lectures, has seen but little of surgery at close range. It deals only with the diagnosis and treatment of conditions that demand immediate operative measures, but it deals with these subjects with a clearness and simplicity that leaves nothing to be desired. So that the reader will not find himself in a dilemma as to which operation of several that might be employed should be selected, the author has given but a single good method—one point that illustrates the wise forethought devoted to the work. The illustrations are unusually excellent, representing with surprising accuracy every detail of the operating-room. They are taken from photographs or drawings made during the progress of actual work in the author's practice. In addition to describing the operations themselves, the book treats of the instruments used for the purpose, of materials for surgical dressings and their preparation, of chemicals used in surgery, of ligatures and sutures and their preparation, of sponges and their substitutes, of sterilization, of splints and other rigid dressings, etc. A chapter is given to wounds and their treatment, two chapters have been devoted to operating in a dwelling-room, and one chapter each has been devoted to the healing of wounds and special forms of infection. The book is printed in large type, on a superior quality of paper, which effectively displays the cuts and adds to the typographical appearance. The work reflects great credit upon the publishers. (New York: The Macmillan Company, 66 Fifth avenue. 412 pages, 7 x 9. Price, \$4.00.)

THE JOURNAL OF THE MEDICO-CHIRURGICAL COLLEGE (of Philadelphia, Pa.) is the title of a new medical periodical published as "a medium of communication, issued in the interests of the Medico-Chirurgical College, its students, and graduates." We wish the enterprise success.

William A. Purrington, Esq., lecturer in the University and Bellevue Hospital Medical College, New York city, has written a very interesting book on CHRISTIAN SCIENCE, including an exposition of Mrs. Eddy's so-called wonderful discovery, with its legal aspects. The author makes a strong plea for children and other helpless sick who are often at the mercy of deluded relatives and thus denied proper medical service, presenting as a frontispiece and as an object-

lesson the photograph of the gangrened foot of a child treated by a "healer." Those who are interested in this "latter-day" delusion, and the theory and limitations of medical legislation in regard to it, would do well to peruse this book. (E. B. Treat & Co., Publishers, 241-243 W. Twenty-third street, New York: 194 pages, 5½ x 8. Price, \$1.00.)

We have recently received Kemp & Co.'s PRESCRIBER'S PHARMACOPOEIA for 1899-1900, a synopsis of the more recent remedies, official and unofficial, with a therapeutic index. This valuable vade-mecum is based upon the British Pharmacopoeia, and, while of special value to practitioners in Great Britain and her colonies, is replete with information of interest to physicians everywhere. The work contains 420 pages, and is published by the enterprising house of Kemp & Co., Ltd., Chemists, Bombay, India.

The fourth edition of Dr. W. P. Agnew's HEMORRHOIDS AND OTHER NON-MALIGNANT RECTAL DISEASES has been published. The author is to be commended for giving audience to methods of treatment from unscientific as well as scientific sources. Among the former may be mentioned the carbolic-acid treatment for hemorrhoids and the subject of "flushing the colon." A great many valuable methods of treatment have come to us from unclinical sources and have come to us from non-clinical sources and forts of physicians. Dr. Agnew's work throws light on a subject worthy of the closest study, but too often neglected by the average practitioner. (San Francisco, Cal.: Pacific Press Publishing Company.)

BIBLIOTHEK DER GESAMMTEN MEDICINISCHEN WISSENSCHAFTEN FÜR PRAKTISCHE AERZTE UND SPECIALÄRZTE. This extensive series is slowly being finished. The present fascicles contain a series of practical discussions on different forms of skin-diseases, including those of venereal origin—syphilis of the larynx and of the bones; syphilis of the liver and lungs; leucoderma syphilitica; leucoplacia, etc., are among the subjects described. The subject of cosmetics is very ably handled, and the author of this section gives a large number of formulas of the different cosmetic lotions in use. (Vienna: Published by Dr. A. Drasche. Parts 184-187.)

CONSUMPTION AND CHRONIC DISEASES, by Emmet Densmore, M.D., of London, is a popular exposition of the open-air treatment of these diseases, describing a hygienic cure, at patient's home, of incipient and advanced cases. The object of the book is to make known the methods employed and the successes attained by Dr. Walther at his sanitarium at Nordrach, in the

Black Forest of Germany, and to make known how this treatment may be successfully followed by consumptive patients at their own homes. (Stillman Publishing Co., 15 Sterling place, Brooklyn, N. Y.: 200 pages, 5 x 7½. Price, \$1.25.)

The State Board of Health of Maine has issued a revised edition of Circular No. 54, **THE PREVENTION OF CONSUMPTION**. Following instructive introductory remarks are rules for the prevention of the disease—for the patient, for attendants, for everybody. The circular closes with formulas for disinfecting solutions.

THE MACMILLAN COMPANY CATALOGUE is a forty-three-page pamphlet embracing the list of new books to be published by that enterprising house this spring. The wide scope of these publications is remarkable. Among the subjects treated are medicine and surgery, biography, history, travel and description, poetry, belles-lettres, literature, modern language, classics, politics, economics, domestic economy, philosophy, ethics, pedagogy, psychology, horticulture, botany, physics, science, theology and the Bible.

### Publications Received

**THE VALUE OF UROTROPIN IN THE TREATMENT OF CERTAIN FORMS OF GENITO-URINARY DISEASE.** By J. M. Thompson, A.M., M.D., Boston. Reprinted from the *Boston Medical and Surgical Journal* of November 15, 1899.

**THE CLIMATE OF COLORADO FOR RESPIRATORY DISEASES.** By Charles Denison, A.M., M.D., Denver, Col.

**THE TUBERCULIN TEST**, and the need of a more complete diagnosis of tuberculosis. By Charles Denison, A.M., M.D., Denver, Col.

**THIRD ANNUAL REPORT OF THE Wayne County (Detroit) Medical Society Committee on Interstate Reciprocity for the License to Practice Medicine.** Communications should be addressed to the secretary of the committee, Dr. E. Amberg, 32 W. Adams Avenue, Detroit, Mich.

**SOME AUXILIARIES TO CLIMATIC TREATMENT OF PHTHISIS.** By J. E. Stubbett, M.D., Reprinted from the *Medical Review of Reviews*, July 25, 1899.

**A REVIEW OF THE HISTORY AND LITERATURE OF APPENDICITIS.** By George M. Edebohls, A.M., M.D. Reprinted from the *Medical Record*, November 25, 1899.

**CATALOGUE OF the Loomis Sanitarium for Consumptives, Liberty, Sullivan county, N. Y., for incipients only.**

**PURPURA RHEUMATICA.** Remarks. Two cases in the extremes of life. By W. L. Johnson, M.D. Reprinted from the *New York Medical Journal*, October 7, 1899.

**CYSTITIS PRODUCED BY CATHETERIZATION OF THE FEMALE URINARY BLADDER, AND ITS PREVENTION.** By J. Murray Johnson, M.D., Bridgeport, Conn. Reprinted from the *New England Medical Monthly*, December, 1899.

**FIVE HUNDRED AND FIFTY SURGICAL OPERATIONS WITHOUT ALCOHOL.** By Charles Gilbert Davis, M.D., Chicago. Reprinted from the *Western Clinical Recorder*, 1899.

### Christian Science<sup>1</sup>

Persecution makes proselytes. This is history. Were it not for the fact of the persecution of the Christians under the infamous Nero, humanly speaking, the religion would probably have died of inanition. The cruelties to which these men were exposed drove them from city to city, and as they were earnest, faithful disciples, they simply carried their religion with them, disseminating it broadcast. This ancient incident is exemplified in modern times in the case of the so-called homeopaths. Had the more recent adopters of the ancient similia fallacy (for Hahnemann was not original by any means in his craze) not been persecuted, but simply ridiculed, we doubt if even the commercialism of this pathy would have survived until now. Then it behooves us, in our ardency to put down wrong, or what we believe to be so, not to use means that shall directly antagonize the desired end.

Perhaps one of the most stupendous frauds of the latter part of this century is the so-called Christian science, and yet unless it is handled with velvet gloves, its extinction will not be assured. That the subject may be more thoroughly comprehended, a short history of its high priestess and her doctrines will not, at the present time, be out of place.

Mrs. Eddy was originally a homeopath, and as she herself says that as medicines of a very high potency will cure disease, in which medicines there is barely a suspicion of a drug, therefore the patient could be cured without any medicine at all. In all the blasphemy and nonsense that fills her book, "Science and Health, with Key to the Scriptures," this is the only solitary gleam of common sense. Mrs. Eddy holds there is no such thing as mortal body, no mortal pain, no mortal anything, in fact, in the words of Tom Hood, "No nothing."

This charlatan pretends to cure diseases by trying to make her dupes believe that as they really have no mortal body, how can they be sick. Yet for fear of bringing on herself and her followers the dangers of a suit for malpractice, she studiously leaves surgical cases alone, for in her own words we cite "until the advancing age admits the efficacy and supremacy of Mind, it is better to leave the adjustment of broken bones and dislocations to the fingers of surgeons, while you confine yourselves to mental reconstruction and the prevention of inflammations or protracted confinements." In a thousand and one places in her book she contradicts herself.

How can one imagine anyone without a "mortal body" giving birth to a child? Yet she orders her followers to look after "protracted confinements."

If intelligent men and women choose to "follow after strange gods," and lose their lives by taking up vagaries of this character, we have naught but pity for them, and we would not lift a finger to stop them; but when it comes to the sacrificing of innocent baby lives, who have no voice in the matter, to the risk of spreading infectious and contagious diseases broadcast on the land, to the setting at defiance all the laws for the protection of the public against decimating epidemics, then we call a halt to such a saddling on to the teachings of the religion of Christ the devil's most pernicious attempt to depopulate the earth.

Mrs. Eddy has grown enormously rich on her traffic in the well-being of the race.

<sup>1</sup>*Northwestern Lancet*, XX, No. 3, p 53.

# MERCK'S ARCHIVES

OF

## THE MATERIA MEDICA <sup>AND</sup> ITS USES

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### The United States Pharmacopœia

ON the first Wednesday of May of the present year there will assemble in Washington, D. C., delegates from all the principal medical and pharmacœutical societies, and from all the medical and pharmacœutical colleges of the United States, for the purpose of formulating plans for the Eighth Decennial Revision of the Pharmacopœia of the United States. Physicians and pharmacists are very much interested in the work that is likely to be accomplished by this convention, but we feel that, considering the vast importance of the decisions there to be reached and of the far-reaching consequences of any erroneous step that may be taken, the sum of that interest is very far short of what it should be and of what it would be if every medical man in the country could be made to realize fully the possible effects upon himself. That convention can by vote, if it deems it best to do so, alter the dosage of any drug prescribed in this country, alter the composition of any compound contained in the Pharmacopœia, introduce new remedies into official importance, throw out remedies that we may deem of value, thereby making them less reliable for our future use through leaving every

druggist thereafter to produce them in any manner that he may see fit and of any kind of materials, and in these and other ways change the character of the medicines patients will get on any given prescription. Of course, in a convention composed, as this one is, of representative men, no such revolutionary measures as are here spoken of could possibly be taken, but the fact that the possibility exists should bring to the realization of the profession the seriousness of the work that these men are called upon to perform. There is not in the United States a single physician of the regular school whose future relation to his patients will not be affected, for good or ill, to an appreciable or to an inappreciable extent, by the decisions of this coming convention. Some of the measures already proposed, and that are sure to be acted upon by the convention, have a legal bearing that may seriously affect medical men and pharmacists by saving them from malpractice suits or precipitating such suits upon them. The question of introducing *doses* is one of the issues sure to be discussed, and should it be decided to put in maximum doses, as many druggists anxiously desire, it may lead to



no end of trouble when a physician wishes to transcend such doses and perhaps double them for reasons that he alone is capable of fully appreciating. If the wisdom of the convention decides to introduce only such doses as have been shown to give physiological results on people of average size and susceptibility, it is quite likely that it will prove of value to medical men. When druggists and lawyers learn that the doses given have no reference to the size of dose a doctor may see fit to give in a particular case, the former will not interfere with the wishes of the doctor, and the lawyer will have nothing to work upon when overdosing is charged in court.

Another measure that has been proposed as a possible question to settle at the coming convention is the introduction of new synthetic remedies and new remedies derived directly from natural sources. Hitherto the existence of proprietary rights has debarred the entrance of such preparations from the Pharmacopœia. Now the requirements of the majority of physicians who prescribe such articles as phenacetin or sulfonal clamor for their recognition and standardization. The convention will decide whether or not such articles shall gain admission and how many or how few should receive recognition. The probability is that very few will be thus honored, for the reason that only a very few have established themselves in the good graces of a large enough number of medical men. It certainly would not be good policy to open the flood-gates for all sorts of such preparations before they have established their likelihood to become permanent additions to our materia medica. Should the synthetic remedies be admitted, the question of naming them will have to be considered. Shall they bear their full chemical names or condensed forms, of such names, their commercial names, or names arbitrarily bestowed upon them by the committee of revision after its appointment? The convention must instruct the committee regarding its will on all such subjects.

One of the most important of the duties of the convention will be the selection of its committee of revision and publication. At present that committee is composed of Charles Rice, Ph.D., chairman; Joseph P. Renington, Ph.M., Robert T. Edes, M.D., vice-chairmen; Frederick A. Castle, M.D., secretary; James M. Flint, M.D., treasurer; Roberts Bartholow, M.D., LL.D.; Noah S. Davis, Jr., M.D.; C. Lewis, Diehl, Ph.M.; Robert G. Eccles, M.D.; John Godfrey, M.D.; Willis G. Gregory, Ph.G., M.D.; C. S. N. Hallberg, Ph.G.; William M. Mew, M.D.; Charles Mohr, Oscar Oldberg, Phar.D.; Frederick B. Power, Ph.D.; Henry H. Rusby, M.D.; Lucius E. Sayre, Ph.G.; Otto A. Wall, Ph.G., M.D.; Horatio C. Wood, M.D., LL.D., members. Six members of the committee have died since its organization ten years ago—P. Wendover Bedford, Ph.G.; John M. Maisch, Ph.M., Phar.D.; George F. H. Markoe, Ph.G., A.M.; Alfred B. Taylor, A.M., Ph.M.; Thomas F. Wood, M.D., and Chas. O. Curtman, Ph.G., M.D., a former vice-chairman. The work done by this committee of revision speaks for itself. Its praises have been sounded in every civilized country, and its work stands as a model for others to follow. If the one selected next May does as good work as this one has done, little fault will be found with it during the coming decade.

The first person to propose a National Pharmacopœia for the United States was Dr. Lyman Spalding, of New York city. In January, 1817, he submitted to the Medical Society of the County of New York a plan for the organization of a pharmacopœial convention and the production of a National Pharmacopœia. His plan was approved and carried into effect, and in December 15, 1820, the volume was published in Boston. At present most civilized countries have pharmacopœias of their own; but owing to the closer communication between nations a great many competent persons think that there should be an International Pharmacopœia, in which common stand-

ards should be established for all medical preparations, so that a prescription compounded in New York would not differ from one compounded in St. Petersburg or Calcutta. Several attempts have been made to arouse sufficient interest to make possible such a Pharmacopœia, but up to the present time they have met with but indifferent success.

The present committee of revision of the United States Pharmacopœia has done a vast amount of work for the advancement of our knowledge of drugs—work, too, of which the revisors of all other pharmacopœias take advantage. In this feature America is far ahead of every other country. The money acquired by the sale of the publication is used to pay outside experts for research work in directions where our knowledge is limited. Where the members themselves do such work it has been customary to reimburse the outlay for materials and apparatus. As an illustration of the kind of work that has been done for the world in this way by this committee, the following titles of papers will give some idea, though a very imperfect one; each represents actual experimental work and not compilation: "The Detection of Adulterants in Powdered Drugs," "A Brief Study of the Rhubarbs and a Probable Adulterant," from research committee C; "Testing of Formaldehyde," "On the Assay of Belladonna Plasters and the Alkaloidal Strength of the Belladonna Plasters of the Market," "Comparative Accuracy of Titrimetric and Gasometric Methods of Estimating Hydrogen Dioxide in Presence of Various Preservative Agents," "Examination of Commercial Samples of Amyl Nitrite and Spirit of Nitrous Ether and a New Method for Their Valuation," "Valuation of Crude Carboic Acid," from research committee D, II; "Criticism of a Proposed Method for the Assay of Senega," "On the Occurrence of Methyl Salicylate," "On the Volumetric Estimation of Methyl Salicylate," "Benzinum, U. S. P.," from research

committee G; "Indian and Alexandrian Sennas," "Veratrum Viride Ait. and Veratrum Album L.—a Comparative Histological Study," "The Comparative Structure of the Barks of Certain American Viburnums," from research committee C. These titles represent but a small part of the work that has been done in chemistry, comparative histology, and pharmacology. The revision committee also keeps a man constantly at work watching medical and pharmaceutical literature in order to pick up every piece of information that can be found regarding pharmacopœial drugs and every criticism that is made upon the contents of the Pharmacopœia. These are all published in alphabetical order, in small pamphlets for future guidance. A criticism of the committee's work in any journal of fair repute is certain to be communicated to the members of the committee. In this way every error of one edition that has been pointed out is sure to be eliminated from the succeeding one. When one stops to think that all this work is a labor of love on the part of the committee of revision, it is impossible to withhold from its members that mead of praise which they deserve. The work of Dr. Charles Rice, the chairman, is particularly difficult and trying, and the masterly way in which he accomplishes it has long been a source of astonishment to his fellow members of the committee, as it will be to the members of the medical and pharmaceutical professions as soon as they begin to realize its scope.

All communication between the members concerning the work of revising is accomplished through Dr. Rice, and the amount of correspondence that he is thus compelled to repeat would make a volume very much larger than the Pharmacopœia if it were published. Every letter must have as many hectograph copies as there are members of the committee, and every report of work done, however long, must be multiplied and copies mailed to members. Sometimes a single communication will fill twenty or more large sheets of paper.

# The Present Status of Antiseptics in Surgery

By THOMAS H. MANLEY, M.D.

Visiting Surgeon to the Harlem (N. Y.) Hospital; Professor of Surgery, New York School of Clinical Medicine

IT is now about twenty years since the general adoption of the antiseptic treatment of wounds in the United States; although some few surgeons had employed such treatment before, it was only at this period that the principle of antiseptics, as a doctrine in prophylactic therapy, was generally recognized.

Ample time has elapsed to permit us to pronounce on the soundness of the new system, its scientific foundation, and its claims, as a means of preventing infection, inflammation, suppuration, or gangrene, in wounds produced by accident or deliberately by the surgeon.

When first introduced, antiseptic remedies were hailed with enthusiasm by the greater part of the profession, although there were some few who stubbornly denied their efficacy, and others who only employed them in a perfunctory manner, rather to escape criticism than because they had any abiding faith in them. Against these were arranged the uncompromising extremists, who regarded every description of wound as germ-infected, to be only purified by strong antiseptic solutions. The healthiest wound was douched and flushed, streams played from irrigating jars over the parts as they were divided under the scalpel, and every wound was canalized by multiple tubes of rubber or glass. "We must 'drain' everything."

It was not long before it was found that antiseptic solutions in sufficient strength to destroy every description of germ were fatally destructive to the cellular elements of a part; moreover, they were capable of systematic resorption and of producing toxic conditions. It was, furthermore, learned that many varieties of bacteria are comparatively innocuous in healthy wounds; and along with this, it appeared that the blood plasma and the leucocytes possess active germicidal properties.

Clinical observations daily convince us

that the healthy tissues digest with perfect impunity microbes or bacteria of every description, and though theoretically desirable, we have no proof that complete destruction of all germ invasion of a fresh wound is possible, without impairing or destroying the vitality of the cellular tissue. More than this, we know that there are certain tissues intolerant of any chemical solution of antiseptic strength. This is notably obvious with those parts lined by endothelia and the nude bone surfaces.

Had antiseptics fulfilled what was at first promised, the scope of surgical intervention would be unlimited, as the operator, no longer restrained by fear of any other accident or sequela than hemorrhages, would have a boundless field before him. Experience, however, has demonstrated that there are certain limits, beyond which antiseptics give no security.

In all fresh wounds, not the seat of suppurative changes, it was soon learned that some of the fundamental essentials of antiseptic technique might be dispensed with—that the spray was needless, free irrigation unnecessary, and indiscriminate drainage worse than useless.

It having been demonstrated, after a time, that antiseptic solutions had but a limited application in recent wounds produced by accident or art, and yet appreciating the fundamental principle of such solutions, as annunciated by their celebrated discoverer, viz.: "to exclude pathogenic germs from the site of operation," the word "asepsis" was coined. It may be accepted as defining a condition as well as any other word that could be invented, though it is inaccurate and misleading. The term implies a sterile operation, one in which germ action is wholly excluded, which is something beyond the range of possibility. Let the dressings be ever so baked and boiled, and the operator gloved, hooded, and masked, the atmosphere will



defy him. Besides, repeated experiments have proved beyond question that perfect sterilization of the healthy integument is impracticable. The lengths to which some have gone in the aseptic side of surgery borders on the ridiculous. In suppurative cases, asepsis is an absurdity, and in every instance it is abortive without antiseptics.

Asepsis, strictly speaking, is but another term for modified antiseptics.

Lord Lister, in the beginning, claimed for antiseptics that they "excluded fermentation in open wounds," or, we might translate his phrase to mean, in modern terms, that "the aim was to destroy the pabulum on which pathogenic germs multiply"—something quite impossible without the aid of chemicals. His purpose was, first, to cleanse the parts, and, second, to preserve them uncontaminated.

What is practiced to-day, and what seems to have come to stay, is modified antiseptics. In the practice of asepsis, antiseptic agents occupy a prominent place, though with distinct limitations. They must be employed in cleansing everything—soap taking the first place, among what Dr. I. E. Bonfleuer, of Chicago, would class as the "innocuous" antiseptics. The surgeon's hands, the integuments of the patient, the instruments are saturated with them, and the gauze dressings must freely imbibe them.

Antiseptics are not now employed during the operation. They are rigidly restricted, in non-infected cases, to before and after the operation; hence, the intermediate or operative stage only is, properly speaking, the aseptic. Careful preparation in every detail, in the way of radical and complete antiseptic cleansing of everything, constitutes the most essential step in preventing wound infection. After operating and closing the wound, proper antiseptic coverings will render no more dressings necessary, in flesh wounds, until healing is complete. This feature of immediate healing of a large breach in the tissues evidently curtails the labors of the surgeon. The full efficacy of antiseptic agents is best realized when we have to deal directly with parts already the seat of inflammatory action.

Here they act directly on pathogenic cocci or bacilli, or, what is more probable, not infrequently this action is only inhibitory.

An objection has been made to nearly all chemical solutions, that when they are injected directly into the nude tissues they are largely rendered inert by producing coagulation and forming albuminates. On suppurating surfaces, on the lining of pyogenic membranes, and along purulent tracts, this is precisely what we seek to accomplish with those valuable antiseptics of pronounced styptic properties, such as hydrogen peroxide, alcohol, the solutions of carbolic acid, and the silver salts.

In infected cases, in order to realize proper results, the drain must come into requisition, to carry away any residue of infected or necrotic elements remaining, and antiseptics must be employed during, as well as before and after, operation.

The dry treatment of wounds marks a notable and substantial advance in operative surgery. Operators now seek to render their work as dry as possible through every stage of the operation. With carefully prepared swabbing materials and dressings, in a large range of cases, it constitutes the ideal technique.

This dry embalming of the tissues involves a modification of the antiseptic technique. Everything is desiccated. Hemostasis must be as complete as possible: the wound is made dry, the gauze-dressings charged with antiseptic substances have their aqueous element abstracted in a large degree, and antiseptic agents employed are reduced to dry powder and dusted over the parts.

In many open fractures or mutilations of the soft parts, this dry embalming with antiseptic materials, when infection is suspected, may be used with good results.

Iodoform is still preferred as the most effective dusting powder, although it is only indirectly an antiseptic, and, moreover, is prone to toxic absorption. The later mode of treating wounds has brought forth several new antiseptic powder preparations, which, no doubt, will largely displace irrigating solutions. Their great advantages are that they may be preserved

indefinitely, are in a concentrated form, are small in bulk, and require no elaborate apparatus for their employment.

It will be noted from time to time that there are surface lesions of the cuticle, subcutaneous tissues, or mucous membranes, that instead of promptly healing under local dressings, suppurate or ulcerate indefinitely. For example, we operate for a necrotic appendix, but the wound keeps on discharging and shows no signs of closing. The patient has pyrexia of an intermittent character. Quinine and arsenic are then freely administered, thus attacking the plasmodium in the circulation. The fever will then likely diminish, to be succeeded by the healing of the painful, open sinus in the abdomen.

Wounds in the syphilitic, rebellious to local treatment, often yield kindly to internal administration of specifics. Gonorrheal arthritis, of such intensity as to drive the patient to despair, is decidedly influenced by the iodides and mercury.

Long before antiseptics were heard of, mercury was well known as a sovereign remedy in various types of inflammation. Its employment was then empirical; now, it

is based on scientific principles. But we make a mistake when we restrict its use to the incised parts, in inflammatory conditions. In various types of appendicitis, whether there be a tumor or not, free mercurial inunction over the site of the appendix will often thoroughly and quickly remedy the trouble.

Antiseptics in the cavities of the stomach, the rectum, or vagina, are of incalculable value. Of course, they are comparatively inert and worthless unless preceded by a thorough cleansing process.

It is almost inconceivable how foul and fetid the stomach may become, through masses of decomposed ingesta besmearing its wall, in cases of gastric inertia, or organic disease; it is also amazing to note the extent of relief following a thorough washing out with soapsuds and the use of Türk's gyromele, to be followed by a liberal flushing with some of the milder antiseptic solutions.

In diseases of the vagina or the rectum, as those organs may be, in all their parts, exposed, thorough cleansing and direct antiseptic applications will generally cut short non-malignant, infected conditions.

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[Written for MERCK'S ARCHIVES]

## Orexine Tannate in Anorexia

By J. W. P. SMITHWICK, M.D., LA GRANGE, N. C.

Editor of *Southern Medical Journal*

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O<sub>R</sub>EXINE TANNATE is the best remedy that I have ever used in anorexia occurring in children, on account of its easy administration. It is not objected to by any of them. For adults I usually prescribe it to be taken in doses of 6 grn. an hour before each meal, and for children I decrease the dose according to age.

I used this drug upon myself for functional dyspepsia of the stomach, with good results. I had no appetite, had a bland, saline taste in my mouth, especially during the early morning hours, and there was an inclination to constipation. Very often food would remain in my stomach several hours beyond the time required for its digestion. I tried all the bitter tonics, hydrochloric

acid, pepsin, and a great many other drugs, but with little benefit, and that was evident only while I took the medicine. I tried orexine tannate as an experiment, in doses of 6 grn. an hour before each meal. In two days' time I noticed an improvement, and at the end of one week there was a decided change for the better. I continued the drug for two weeks longer, however, taking only two doses of 5 grn. each a day, one before the morning and evening meals, with the result that my trouble had entirely disappeared at the end of that time. Since then I have remained perfectly well, and have had no distress in any way. During its administration my bowels became regular and have continued so now for some time.

I have made use of orexine tannate in several cases of anorexia, symptomatic in character, and have always observed good effects to attend its administration. I have administered it to convalescents from acute diseases, and it did exactly what I desired in increasing the appetite and aiding digestion and assimilation. For loss of appetite from various causes I have used it in eighteen cases, which may be classified as follows: Functional gastric atony, five; anemia, three; tuberculosis, four; convalescence, six, and I cannot complain of the results, as it acted more satisfactorily than anything else I have ever tried. In all cases the body-weight increased, but more rapidly in some than in others. This feature was especially noticeable in the phthisical patients. One of them, during the second week of its administration, gained  $2\frac{1}{2}$  pounds, which was very surprising to me, since I had such poor success with the use of other tonics. The beneficial action of the drug was noticed in most cases soon after its administration was begun, but in one of the cases of anemia it was three days before any change was observed.

The length of time required for treatment in my cases has been variable, and was influenced in a great measure by the individual characteristics of each patient, and the origin of the trouble. In simple atonic dyspepsia it was not necessary to continue the treatment longer than three weeks in any case; in anemia one of the patients was treated for a period of six weeks, and the other two about four weeks each; of the four phthisical patients, two were treated for six weeks each and now two months have elapsed and they are doing well; in the other two the disease was farther advanced and they are now under treatment. They are doing well, however, and the increase in weight averages about 1 lb. a week. In the convalescents to whom it was administered a rapid improvement was observed, and it was not necessary in any instance for them to take the drug for a longer time than one week. The gain in flesh and body-weight was very marked in this class of patients.

To demonstrate the therapy of orexine tannate, I relate the clinical history of one

case taken from each of the categories mentioned heretofore:

O. A., age thirty-four; had been suffering with atonic dyspepsia for a year and a half. Complained that he never had any appetite, and that the taking of food caused no pleasure as heretofore. He simply ate because it was necessary. On some days he would scarcely eat anything. The epigastrium was sore and tender on pressure, and a small amount of pain was almost constantly present, which would be relieved by vomiting. Bowels were inclined to constipation. During the year and a half of the trouble his weight had decreased from 165 to 132 lbs. In this case I first prescribed a mixture of hydrochloric acid and tincture of nux vomica, but it was of no benefit save that it stimulated the appetite to a certain extent. I then prescribed orexine tannate in doses of 6 grn., to be taken one hour before the customary meals. In two days' time he noticed considerable improvement, the appetite had improved, and the digestive powers of the stomach had increased. This medicine was continued for three weeks, during which time there was a decided improvement. The bowels became regular, appetite and digestion good, and the assimilative powers much improved. His weight increased nearly 8 lbs. during that time. I advised that he be careful about overeating, and he has since been doing well and now weighs 150 lbs.

J. C. N., age seventeen; this young lady was suffering from profound anemia caused by repeated attacks of malaria. Her appetite, digestion, and assimilation were exceedingly poor. During the three months she had been sick she had lost about 20 lbs. in body-weight. Her lips and cheeks were pale and complexion sallow. I gave her orexine tannate in 6-grn. doses one hour before meals, and 2 drops of Fowler's solution half an hour after meals. The first day of its administration she noticed an improvement in her appetite and she had not been taking it for more than a week before her appetite was good, and she could digest and assimilate anything that she ate. She continued the medicine three weeks longer, and at the end of that time was feeling perfectly well. Her color had returned, and she was fast regaining her lost weight.

C. J., age twenty-eight; applied to me for treatment of anorexia and indigestion. I made a physical examination of the chest and determined that a tuberculous process was in progress in the apex of the right lung. His appetite and digestion were poor, tongue coated, and he had lost several pounds in weight lately. I prescribed orexine tannate in 7-grn. doses to be taken an hour before meals. At the end of a week he reported that a great improvement had taken place. His appetite was good, and digestion and assimilation very much better. He continued



the treatment for six weeks, and made a very decided improvement. Two months have now elapsed since he stopped the treatment and he seems to be doing well.

S. T.; was convalescing from an attack of typhoid fever, and contrary to the usual condition of affairs had a very poor appetite, and when she ate anything it would remain for a long time

undigested in the stomach. I gave orexine tannate in the usual dose and manner, and she experienced a desire for food after the second dose. It was taken for three days, and during that time her appetite, digestion, and assimilation had improved so much that it was discontinued. The improvement continued and her convalescence was short and complete.

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[Written for MERCK'S ARCHIVES]

## Use and Abuse of Ergot in Obstetrical Practice

By J. H. JACKSON, M.D., A.M.

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ERGOT, although a parasite of rye, has a definite place of usefulness in medicine but it has been put to many uses and into many places where it did not fit. No medicine has had a fairer or more extensive trial, and no medicine has been more extravagantly praised and recklessly blamed—a specific, according to some, and absolutely useless but not blameless by others; a useless thing for good but full of potential evil.

Let us endeavor to unravel this tangle of assertions and see if we may not fix, partially at least, its true place. Let us first take into consideration its use as a uterine-motor stimulant. Here nearly all are agreed as to its power, but are not as unanimous as to its usefulness. If we agree as to its value, we are not all of one mind as to when and where to use it, or as to what form is best for use in a given case, neither do we believe alike as to its immediate effects. Its true place is elusive. We do not agree even as to the method of giving the remedy, whether by the mouth, the rectum, or hypodermically.

It is asserted that ergot acts upon the muscle of the pregnant uterus. But does it act in a kindly way, or does it disappoint by the method in which it exercises its power? Some authors seem to admit in a guarded way its effectiveness, and consent with slow reserve to its use, but like the mercuries it must be given in infinitesimal doses, and the smaller the dose the more effective the medicine, and they choose that their patients should inhale the aroma rather

than swallow even the smallest dose of the drug.

Believing in this way, why do they not courageously say No to the use of it. But wherein lies the unspoken objection? Is it true that it produces a chronic condition of rigidity, which threatens death to the child and distress to the mother? Yes and no. The womb is rolled into a harder ball, but I have yet to see a case where relaxation, at least partial, does not take place between the pains, as I have proved by placing my hand over the contracting organ. So long as the membranes are not ruptured, the use of ergot would not by pressure endanger the child, as it would be a mechanical impossibility—the womb would not be able to overcome the resistance of its liquid contents. Let the membranes rupture, and there would be danger to the descending child if large, or if there were a contracted pelvis or other mechanical obstacle. If ergot were used early, it should now be stopped. But is there no antidote for the danger or any reliable corrective of its tendency to hyper-rigidity? Opium, bromide, chloral in small doses, chloroform, and ether are effective.

Let us suppose the child born alive or otherwise, would the use of the drug be advisable just before the birth or after, to prevent post-partum hemorrhage; and if so, are there any dangers connected with its use which must be looked after, for the sake of avoiding or remedying them? It has been accused of detaching the placenta just before the birth of the child and causing internal hemorrhage. Two cases of this have

been reported to me within ten years; after questioning the attendants carefully, I have concluded that the first case was due to a short cord pulling upon the placenta during the descent of the fetus, and the second was the result of injudicious pressure with the hand in front pressing unequally upon the contracting organ. Another danger is hour-glass contraction, shutting in the after-birth or possibly a large clot after the escape of the secundines but is this a great danger in the hands of a careful practitioner? Usually it is not; a little patience, a little careful observation, and the average amount of skill with the aseptic conical hand, and all danger is past. But is the danger so imminent as to require interference? Let the multitude of exsanguinated and dying women answer with their pallid faces and pulseless wrists. Post-partum hemorrhage is not a thing to be safely experienced. It is the evident duty of the practitioner to prevent it if possible. Ergot must be the careful man's principal helper in doing this.

But to what conclusion does all this lead? Here is the rule: Avoid ergot when not a necessity, as it is a thing of power; but it is manageable if understood and the time and circumstances are properly selected. To use it successfully and innocuously one must know it thoroughly and understand his patient and the position of the unborn child.

If the patient and the child are right, but the labor slow, may ergot be given in the early stage of labor? I would unhesitatingly say Yes, with safety to the child until the escape of the amniotic liquid. As a rule, however, it is neither necessary nor desirable; there are other agents as powerful for good, but not so dangerous as ergot. I should prefer my patient to wait until uterine contractions had set in with power sufficient to overcome the comfort given by a slight opiate.

When rupture of the membrane has taken place, ergot must not be thought of for obvious reasons. Quinine and strychnine are safer, while sometimes manual or instrumental interference are the only things available for the safety of the mother and child. Obstetrical surgery and good judgment must go hand in hand. Interference

must be neither too late nor too early. Do not yield to pressure from without or temptation from within to give ergot at this stage; it is not safe and should be left severely alone. Use instruments or hands, but only after careful and painstaking examination of patient and self. Be sure of your own conscientious sense of necessity before interference, but let not cowardice cause delay when circumstances call for action and death and life stand side by side.

But there is one circumstance which would remove the objection to the use of ergot after the rupture of the membranes. If for any reason it is known that the fetus has previously perished, so that its life is no longer a question for consideration, or if something in the condition of the mother makes it almost certain that unless aided she will die and take the child with her to a common grave; if the mother's life by necessity becomes a paramount consideration, then it would be criminal not to give the drug if it would help to terminate the labor speedily. Such a condition certainly does occur sometimes, but it is so rare that it should be regarded as the exception and should not affect the strict enforcement of the rule not to use ergot after the breaking of the sac. For the child's sake the rule was made, and when the child ceases to live or its life becomes a serious menace to the mother, most accoucheurs will endeavor to save the mother.

To save life or prevent anemia from excessive loss of blood—which is not post-partum in the immediate sense, but what follows later—shall we give a dose of ergot just before or just after the birth of the fetus, and follow by others if needed? It should not be a rule for the intelligent physician, but it would be safer for a man who is simply a routinist to give it in all cases rather than leave it out in all. The man who cannot decide which course should be adopted in a given case, judging when interference is necessary from the circumstances, is not the man to trust. Persons who flow freely at the time of menstruation will be among those most likely to need help from the rye. Women belonging to families of bleeders must be carefully watched, for

they will almost certainly need help. Others must at times need it. In the multitude of means for stanching the flow of blood, ergot is the most potent, and must not be forgotten, unless the practitioner would have a death on his hands and conscience by a crime of omission.

If ergot is used near the end of labor and has not done its work by enforcing the necessary involution of the uterus, shall the attendant repeat the dose and how often? As often as will be necessary to get its effect, but other measures must not be forgotten, such as the usual manipulation with the hand over the tardy womb. Ergot requires time for action and the other measures will secure it. Hot water, the tampon, the inserted hand for removal of clots and provoking contractions are sometimes necessary helpers.

In an emergency how shall we give the drug? It is apt to produce nausea when taken by mouth, no matter in what form. A good vehicle for the fluid extract is syrup of wild cherry; with an irritable stomach it is better not to give the pill; it will often nauseate. Rectal injections will not do in an emergency, as action would be too slow, but they may be a good adjuvant in the treatment.

If the patient cannot take by mouth the medicament and the rectum will not do the work, still the necessity for speedy action remains. Speedy work, and that by the speediest route to the bleeding organ, becomes an imperative duty. But if the attendant has not prepared for the emergency, he will find that this ergot is a menace to his patient, since it is not fit for hypodermic use. Without filtration there is danger of inflammation and abscess. By proper foresight he may have a fluid extract, which is comparatively safe, or a hypodermic preparation of ergotin may be used. Some ergotins are powerless, and hence only the best will be of use; a good fluid extract may be properly filtered by him, but he should do his filtering before his patient is dying.

If death is imminent and nothing but a common fluid extract can be had, what shall be done when the patient vomits all which is taken into the stomach? Well, I should

give the ergot which is at hand by hypodermic injection, and so far, in my cases, no abscess has resulted, although there are always signs of protest against intrusion by symptoms of inflammation. I should, however, take the risk, since an abscess is better than death or the anemia of extreme exsanguination.

Under the above rules the fetus is comparatively safe from any unfriendly action of the drug. Now, are there any dangers for the mother other than those described above? There is once in a long time a rupture of the uterine wall, and ergot is sometimes accused of being the cause, but this happens also when ergot has not been used. Rupture is a very rare accident, and a large proportion of the cases, even when rye has been used, may be charged to injudicious manual and instrumental operations while the uterus is rigid from the action of the ergot. Had the rigidity been overcome by some of the well-known means, such as have been mentioned earlier in this article, nothing would have gone wrong. Suffice it to say, that under proper restrictions as to interference, ergot would not cause rupture once in thousands of cases. No forceps or hands should be introduced deep into the uterus while under ergot contraction. Speed is a necessity at times, but effective speed can come only when it is directed by good judgment. I doubt if in any case rupture would occur with proper management if in a healthy person.

Ergot is undoubtedly a powerful means of preventing afterpains, or rather of shortening the period of their existence. It is an old and almost forgotten means of staying those provoking and troublesome contractions which come to an otherwise happy mother. The contractions are a necessity to accomplish involution and the expulsion of coagula and bits of membrane. Ergot hastens the necessary processes just mentioned, and many a case of suffering maternity has been shortened; but it is sometimes a dearly bought freedom from suffering, since the ergot will not always do its work well. Why not? There are accidents in its use. Chronic contraction anywhere in the lower third of the uterus makes an hour-



glass cavity into which the life blood oozes, becomes organized as a clot, sometimes of large size, and there is consequent anemia and loss of strength. Later, after nature's efforts at expulsion have been paralyzed, at first by ergot rigidity, and later by womb tire on account of the long struggle with ergot's peculiar effects, a decay of the coagulum begins and septicemia with its suffering and terrible dangers sets in. What is possible is not always best.

Is there, then, no way to get the relief given by the drug and avoid the danger? In the hands of some men its use would prove dangerous. It is safe and desirable for patients if administered by a conscientious and intelligent attendant. Is it just possible that some of the causes of coma and syncope which have been assigned to Bright's disease during labor and pregnancy have been due to anemia of the brain or clotting on account of reduction of caliber of vessels by the use of ergot? Even if it does sometimes happen that a patient dies of lack of blood in the brain or blood-clot coming from the stasis of caliber reduction, still it often may save by preventing the congestion caused by overstrain during the uterine contractions.

If Bright's disease exists, does the ergot by its action increase the danger in pregnancy? On the contrary, it is valuable in cases of kidney trouble; why this is true will be explained in a later paper. If its action is favorable in acute or chronic Bright's disease, it could not be the cause or even a helper in bringing on puerperal convulsions. But is it ever responsible for the existence of puerperal fever or sapremia in lying-in women? Probably it is when coupled with the accoucheur's neglect or ignorance. Let a clot or any part of the membranes or placenta be shut in and not be observed, and a blood-poisoning will in every case be more than threatened. Is this, then, an argument valid against the use of the medicine? If ergot does good work it should be used, and it is not a matter of choice with the physician; he must do his duty and find out and remove such possible bad results. Given just before the birth of the head, does it cause perineal and rectal rupture? Yes, but

so does the use of forceps or the normal pains of labor. The dangers in placenta previa are imminent, and the demand for the relief of the patient from impending death is immediate.

When instrumental relief is impracticable and pressure with the fingers or hand becomes tedious or impossible, we can do nothing better than use ergot. We have no substitute so good: its action must be waited for *in armis*. The resource of mechanical art and local pressure must be used for a short time, and the membranes ruptured if still unbroken. The ergot must be given until the hand is no longer needed as a tampon. If instruments can be used, however, to use them at once will be the safer way for the patient. Ergot should not in this case precede forceps for obvious reasons. Under any circumstances the speediest way is the best. A dose of the remedy should be given at once after the birth to save every drop of blood, for the patient is very poorly prepared to stand more drain. During pregnancy, before labor, no ergot ought to be given. I know of no condition which would justify its use. If such a state of danger could exist, it must be of a graver kind and involve a loss greater than that of the child.

In cases of distocia or of narrowness of the pelvis, the use of rye would only add to the patient's distress. If necessary to produce an abortion for the persistent vomiting of pregnancy, ergot should not be used. Mechanical interference under chloroform or ether is always more certain to give speedy relief to a patient literally starving from inability to retain food.

The following formula is recommended<sup>1</sup> for the treatment of *phthisis*, *catarrh*, etc.

Guaiacol .....	22 grn.
Glycerin .....	220 min.
Calcium Monophosphate .....	110 grn.
Hydrochloric Acid .....	70 grn.
Distilled Water .....	to make 7 fl. oz.

Dissolve the guaiacol in the glycerin, and mix with the solution of the calcium salt in the acid and water, shaking well constantly. A tablespoonful of the mixture, containing 1½ grn. guaiacol and 7½ grn. calcium hydrochlorophosphate, is administered before meals.

<sup>1</sup>L'Union Pharm., XLI, p. 53.

# Antidote Apparatus for Use in Poisoning by Hydrocyanic Acid and Cyanides

By E. MERCK, Darmstadt

FOR a number of years past Professor Kobert<sup>1</sup> has advocated having on hand antidote cabinets, for the reason that only by very rapid treatment are the chances for antidoting poison at all favorable. For no poisoning is this so true as in that caused by hydrocyanic acid or cyanides. The treatment of this kind of poisoning may be carried out by four different methods, according to the present state of pharmacological science.

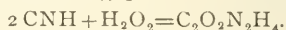
1. Every direct antidote may be discarded, and reliance placed only on inducing artificial respiration, emptying out the stomach, administration of stimulants, and symptomatic treatment of the spasms as they occur. This method of treatment is frequently of avail in mild cases of poisoning, but in severe cases it always leaves one in the lurch.

2. This method depends upon the employment of cobalt nitrate. The injection of this salt in large doses may cause the entire recession or even disappearance of the symptoms of poisoning by hydrocyanic acid, although no satisfactory reason for this can be advanced on chemical grounds. Anderson Stuart,<sup>2</sup> however, a long time ago showed that even the most indifferent cobalt salt, when once absorbed, is toxic to an extent scarcely inferior to arsenic, so far as the lethal dose for cats, dogs, and rabbits is concerned. In the form of a not indifferent cobalt salt, such as the nitrate, and subcutaneously injected, the cobalt may even be far more toxic. That animals have been apparently saved by means of cobalt nitrate, according to existing reports, may be due to the fact that the hydrocyanic acid symptoms are rapidly suspended, but the pernicious effects of the cobalt nitrate are very slowly

developed, and under certain circumstances may cause the death of the animals after a lapse of two weeks. Since, hence, these investigations can not be considered as conclusive, the treatment of human beings with cobalt nitrate can not be thought of.

3. This method is the conversion of the hydrocyanic acid into halogen salts, first proposed by Professor Kobert and his pupil, Goldfarb.<sup>3</sup> This method somewhat lessens the poisonousness of hydrocyanic acid, but does not entirely neutralize it. Professor Kobert found that free iodine or bromine differed but little in their antidotal action, whereas Falck<sup>4</sup> on comparing the effects of cyanogen bromide with those of cyanogen iodide, found the former to be non-toxic. As an antidote for human beings, subcutaneous injections must be made, solutions of sodium iodo-iodide or sodium bromo-bromide being used. When large doses of hydrocyanic acid have been ingested, however, this treatment will scarcely be followed by success. Professor Kobert has hence abandoned it for the process next to be detailed.

4. This method depends upon the conversion of hydrocyanic acid in the system into oxamide by means of hydrogen dioxide, the reaction taking place as follows:



This process was first advocated by Professor Kobert and his pupil, Krohl.<sup>5</sup> The investigations made by these authors with animals justified careful trials with human beings. It is self-evident that hydrogen dioxide per se is not at all toxic, whether introduced subcutaneously, or into the stomach, because on contact with living tissues, and also blood, it decomposes into water and inactive—hence non-toxic—oxygen. Since, however, more of the latter is liberated than can be taken up by the

<sup>1</sup>Address at the Congress for Hygiene and Dermatology at Budapest, 1893; Compendium of Practical Toxicology, third edition; Address before the Medical Society at Rostock, and printed in the *Munch. med. Woch.*, 1899, p. 944.

<sup>2</sup>*Jour. of Anat. and Physiol.*, xvii, p. 89; *Archiv. f. Experim. Path. u. Pharmak.*, xviii, p. 151.

<sup>3</sup>Wirkung des Iodecyans. Dissert. Dorpat, 1892.

<sup>4</sup>Werner Meyer, Beitrag zur Kenntniss der Wirkung des Bromcyan. Dissert. Kiel, 1896.

<sup>5</sup>"Arbeiten des Pharmakol. Inst. z. Dorpat," published by Professor Kobert, 1891, vii.

hemoglobin of the red corpuscles, and circulates in the vascular system in the form of bubbles, it might be expected to cause air-embolisms as well as dangerous mechanical circulatory disturbances. Fortunately, however, this danger is very slight in poisoning by hydrocyanic acid, because so long as the blood contains the acid, decomposition of the hydrogen dioxide proceeds according to the formula above given. The oxamide is not altogether non-toxic, as Kobert's investigations have shown, but in the small quantities that are likely to be formed it may lead to at most the formation of concretions in the urinary passages, but which may be readily removed by the copious ingestion of liquids. It is a fact that in English mining and smelting works, where a great deal of cyanide is used, the Kobert method of treatment has proved successful for a number of years, and it has also been generally introduced into the South African gold mines. In order to facilitate the application of the antidote in all places where gold-plating is carried out, as well as in chemical laboratories, photographic studios, and in mining and metallurgical operations—in fact, in all places where hydrocyanic acid or cyanides are largely used—an antidote cabinet has been designed. This is intended for use by physicians, but in case of necessity can also be used by anybody, as may happen in mines where no physician is at hand. The cabinet consists of a tin can provided with the following articles:

A glass flask *A*, filled with a 3-per-cent. hydrogen-dioxide solution, and hermetically sealed.

A glass flask *B*, filled with a 30-per-cent. hydrogen-dioxide solution, and hermetically sealed.

A glass hypodermic syringe.

A stomach-tube and funnel.

A small, conical-shaped glass.

A small file.

A small pair of pincers.

The application of the antidote is as follows:

#### I. GENERAL

Poisoning by potassium cyanide may be caused either by ingestion per os (with food or beverage), or by the inhalation of free hydrocyanic acid liberated by exposed solutions of potassium cyanide, because of

the decomposing action of the atmospheric carbon dioxide, more particularly in badly ventilated warm rooms. Both kinds of poisoning may be treated with hydrogen dioxide, but in that in which the cyanide has been introduced into the stomach, the latter also must be treated with the antidote, whereas in poisoning by inhalation it need not. The symptoms of poisoning which may appear in both cases may be very diverse; for instance, there may be complete insensibility and inanimateness, or severe spasms. The patient will always, however, exhale an odor of hydrocyanic acid and will nearly always exhibit very difficult respiration and frequently weak pulse. In case no physician is at hand, or immediately obtainable, the patient should be laid on his back and rhythmic pressure applied over the heart region with the palm of the hand in order to simulate and sustain the failing respiration. This manipulation is of great importance for the weakened heart, and it also furthers the effectiveness of the antidote. While this artificial respiration is being performed by one person, it enables time to be saved while another gets ready the antidote, and carries out the treatment. This consists of two manipulations—subcutaneous injections and washing out of the stomach.

#### 2. SUBCUTANEOUS INJECTIONS

These injections are to be practiced in either form of poisoning. For this purpose the solution in the flask *A*, containing 3-per-cent. hydrogen dioxide is used, undiluted. A deep scratch is made with the file just below the fused joint of the flask, and the point is then broken off with the pincers. The contents of the flask are then poured out into the conical glass, and from it the syringe is filled, and the contents injected, after removing any air-bubbles through a canula into a fold of the skin on any part of the body. The slight swelling following an injection may be easily removed by repeated pressure and massage with the hand. Injections are to be made every three to five minutes in different parts of the arms, limbs, abdomen, chest, and back, until the respiration becomes normal again, the pulse stronger, and there is no more appearance of



cyanosis. In serious cases a number of injections may at once be made.

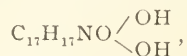
### 3. WASHING-OUT THE STOMACH. . .

Washing-out the stomach must be practiced in these cases in which the poison has been ingested. The tin can in which the various articles are contained is filled half-full of water, and in this the contents of flask *B*—the 30-per-cent. hydrogen dioxide—are emptied, after being opened like flask *A*. One end of the stomach-tube is next wetted or greased, and introduced into the stomach—the introduction is greatly facilitated by the act of swallowing on the part of the patient. Should the patient be insensible, the tongue should be grasped by means of a towel and pulled forward, and the tube-end then inserted, care being taken not to introduce it into the larynx instead of the pharynx. When introduced, the contents of the tin are poured into the funnel which has been inserted into the outer end of the tube. Should vomiting not follow naturally, the funnel end of the tube is lowered until a siphon action is started, and the contents of the stomach are entirely withdrawn. The process of filling the stomach and again siphoning off the contents is repeated until all the antidote has been used up, or the patient's condition has become normal. Emptying the stomach is not, however, absolutely necessary, because the small quantities of oxamide formed have scarcely any action. Vomiting does no harm, because it assists in emptying the stomach. The antidote does not require to be left in the stomach for any length of time, for it immediately combines with the poison there. Should the vomited matter have a very alkaline reaction, which may be shown by its action on red litmus paper, a tablespoonful of vinegar should be added to the antidote mixture.

**Vomiting** is stated to have followed the administration of *heroin* by Dr. W. Ross Thompson,<sup>1</sup> of New York, who reports two cases, one of which (a five-year-old girl, affected with mitral regurgitation and pertussis) terminated fatally, due, the author thinks, to the strain or shock caused by excessive vomiting for thirty-six hours. In this case  $\frac{3}{4}$  grn. of heroin had been ordered every five hours.

## Dionin as a Substitute for Morphine and Codeine

**D**URING the last few years a large number of morphine derivatives have been brought before the medical profession with more or less strongly substantiated claims as to their eligibility as substitutes for morphine. As will be seen, morphine,



contains in its molecule two hydroxyl groups—that is, two OH groups—either of which is replaceable by acid radicals, while only one is replaceable by an alcoholic radical. It does not need examination of the already copious literature on this subject to learn that these substitution products are almost innumerable, many of them being more poisonous than morphine and unsuited for clinical employment.

In an elaborate review of the physiological and therapeutic properties of some of the more recent morphine derivatives by J. von Mering, in *E. Merck's Annual Report for 1898* (Darmstadt), published in March, 1899, it appears that when the hydrogen of the phenol-hydroxyl group of morphine was replaced by a monovalent alcoholic radical the ethers thus produced acted on cold-blooded and warm-blooded animals essentially in the same manner as codeine (methyl-morphine).

Of the higher homologues of methyl-morphine, experiments were made by von Mering with ethyl-morphine, propyl-morphine, isobutyl-morphine, and amyl-morphine, from which it appeared that while all acted more or less similarly to codeine (methyl-morphine), the action of ethyl-morphine (to the hydrochlorate of which the name of dionin has been given by Merck), was more powerful and its action was of longer duration than that of codeine, while the others mentioned were decidedly less active.

It was to be expected that dionin (ethyl-morphine hydrochlorate), would not only have a similar physiological action to that of codeine (methyl-morphine), because of its chemical relationship, but would prove of particular value clinically, in accordance

<sup>1</sup>*N. Y. Med. Jour.*, LXXI, p. 171.

with the fact that those compounds which contain the radical of ethylic alcohol are, as a rule, more active than those which contain the radical of methylic alcohol. Thus triional, phenacetin, and ethyl-urethane, which contain an ethylic radical, possess advantages over sulfonal, methacetin, and methyl-urethane respectively, which belong to the methylic group.

Von Mering, in the Polyclinic at Halle, was the first to test dionin clinically, and he found that in many cases where codeine was inefficacious, dionin was an excellent remedy in relieving cough and irritation of the throat, and that it induced quiet sleep without giving rise to unpleasant secondary symptoms.

Dionin, or hydrochlorate of morphine-ethyl-ester ( $C_{17}H_{17}NO(OH)(OC_2H_5).HCl + H_2O$ ) is prepared from morphine in a similar manner to that of codeine, its nearest lower homologue.

It is a white, odorless, crystalline powder of a somewhat bitter taste. It is soluble in water (14 parts in 100 at the ordinary temperature) and forms a neutral liquid. It is highly soluble in alcohol, 73 parts in 120 at  $15^{\circ}C.$ , in simple syrup 1 : 20, but is insoluble in ether or chloroform. The base is precipitated from aqueous solutions by fixed alkalies and their carbonates, and the precipitate is insoluble in their excess; but it is temporarily soluble in an excess of ammonia, a point of distinction from codeine. Thus, if a few drops of ammonia water of sp. gr. 0.91 are added to 5 Cc. of a 10-per-cent. solution of codeine in hydrochloric acid, the base is precipitated, but it is permanently redissolved by the addition of 1 Cc. of ammonia. In the case of dionin, on the contrary, 5 Cc. of the ammonia water are required under similar conditions, to effect a solution, but the base again separates after a short time.

In regard to color tests, dionin behaves the same as codeine.

The literature on the therapeutic action of dionin is already considerable, and characterized by remarkable unanimity of opinion. All observers testify as to the close resemblance of dionin to codeine, and all

claim that its employment is free from the disadvantages which attend the administration of morphine or even of codeine.

A large amount of evidence has already been collected as to the value of dionin as an analgesic, as a remedy in the treatment of the morphine habit, and as a respiratory sedative. Inasmuch as the most important papers on this subject have already been abstracted in different numbers of *MERCK'S ARCHIVES*, it is unnecessary at present to more than allude to some points which suggest themselves on an analysis of the original memoirs.

As an analgesic, Korte<sup>1</sup> states that dionin is not as reliable as morphine in relieving severe pain, but that its use is far less likely to develop a habit; it has no disagreeable after-effects, and in but rare instances does it produce any digestive disturbance; while compared with codeine its effect is more rapidly developed and is more persistent. These conclusions are confirmed by Schroeder,<sup>2</sup> who believes dionin to be distinctly superior to codeine. Bloch<sup>3</sup> maintains that dionin is especially suitable for subcutaneous administration from the fact that its solutions being neutral, its hypodermic use is free from pain, while the phosphate of codeine is acid and its use painful; during six months' extensive use he never found its administration to be followed by any toxic symptoms. He refers to one case particularly where morphine or codeine invariably caused cardiac palpitation, whereas dionin was well borne and gave complete relief from pain. As a narcotic, dionin seems less active than morphine or codeine; as a sedative, Ransohoff<sup>4</sup> reports the most satisfactory results following its employment in the treatment of various psychical affections.

In the treatment of the morphine habit Heinrich<sup>5</sup> claims that dionin is the most valuable of all the substitutes for morphine, starting with doses about one-third more than the amount of morphine to which the patient had been accustomed. He reports

<sup>1</sup>*Therap. Monatsh.*, Jan., 1899, p. 33.

<sup>2</sup>*Therap. d. Gegenw.*, March, 1899.

<sup>3</sup>*Therap. Monatsh.*, XIII, p. 418.

<sup>4</sup>*Psych. Woch.*, 1899, No. 20.

<sup>5</sup>*Wien. Med. Blätt.*, 1899, No. 11.

a case in which the patient was in the habit of taking 10 grn. of morphine daily; by the gradual substitution of dionin, the morphine was entirely discarded after eleven days, and three weeks after this the injections of dionin could also be dispensed with. He attributes the value of dionin in this connection to the fact that it does not cause exhilaration and to its great solubility, through which absorption is rapidly accomplished and cumulative action avoided. Fromme<sup>6</sup> has been equally successful in the treatment of a large number of cases of morphine habit with dionin. He finds that the craving for morphine is satisfied by the administration of dionin, and that while at first large doses of the latter are required, even as much as 16 grn. per day having been given with impunity, progressively smaller doses may be employed, until finally they may be entirely done away with.

In dosage, dionin agrees with codeine:  $\frac{1}{2}$  grn. or  $\frac{1}{4}$  grn. may be given two or three times a day, or  $\frac{1}{2}$  grn. to 1 grn. at night; for subcutaneous use  $\frac{1}{4}$  to  $\frac{1}{2}$  grn. may be employed. It may be given dissolved in sweetened water, or in tablet form. Its solutions are permanent and remain clear and undecomposed for weeks, which is not the case with morphine or codeine.

The most promising and by far the most important sphere of usefulness for dionin is without doubt as a substitute for morphine or codeine in the treatment of affections of the respiratory organs. A large amount of clinical testimony has already been accumulated as to the value of dionin in relieving cough.

Korte<sup>7</sup> employed dionin in doses of  $\frac{1}{4}$  to  $\frac{1}{2}$  grn. several times daily, or  $\frac{1}{2}$  grn. at night in a large number of phthisical cases, and found it to be an excellent and reliable means of relieving irritative cough in the early stages of this disease, and in cases of chronic bronchitis, emphysema, and bronchial asthma. Invariably cough and dyspnea were relieved and asthmatic attacks cut short, dionin being more effica-

cious in these respects than codeine, as its action was found to be more promptly produced and more persistent in duration. Expectoration was facilitated, quiet sleep produced, and night-sweats reduced.

Schroeder<sup>8</sup> has had similar success in the employment of dionin in cases where codeine was indicated, claiming that the action of dionin was much more satisfactory than that of codeine in relieving cough due to irritation, inducing better and more prolonged sleep; in fact, yielding the beneficial effects of morphine without any of the unpleasant after-effects. In few instances only was there any nausea or disturbance of digestion.

Bloch<sup>9</sup> also confirms these statements as to the value of dionin in relieving cough from any cause, and especially recommends its employment in children when a sedative to relieve cough is indicated.

As there would seem to be no doubt from this evidence that dionin is destined to be very largely employed in affections of the respiratory organs, it is important that its mode of operation should be carefully studied. It is strange that, as much as codeine has been employed in this field, until recently no experiments as to its action on man have been published, although many studies have been made as to its action on lower animals. Valuable as such studies are, results obtained in the lower animals cannot invariably be applied to man—else codeine would never have obtained a place in our materia medica. For, while the human system will bear with impunity doses of codeine ten or twenty times as large as morphine, in frogs codeine, from its tetanic action, is considerably more poisonous than morphine.

Dr. H. Winternitz, assistant to Prof. von Mering in the Polyclinic in Halle, publishes a valuable paper<sup>10</sup> based on experiments on the human subject as to the comparative action of various morphine derivatives on the respiratory functions, and his results are especially important in determining the

<sup>6</sup>*Berl. klin. Woch.*, April 3, 1899.

<sup>7</sup>*Therap. Monatsh.*, XIII, p. 33.

<sup>8</sup>*Therap. d. Gegenw.*, 1899, No. 3.

<sup>9</sup>*Therap. Monatsh.*, XIII, p. 418.

<sup>10</sup>*Therap. Monatsh.*, September, 1899.



position which dionin is likely to attain in the treatment of affections of the respiratory organs. It is well known that both in man and in the lower animals the administration of morphine in full doses slows the respiratory movements, reduces the respiratory volume, and decidedly reduces the irritability of the respiratory center. It is evident, however, that closely as the many morphine derivatives may be chemically allied to morphine, there can be no warrant for assuming *a priori* that their physiological action will be as closely analogous.

The experiments of Dr. Winternitz show that even in such closely allied morphine derivatives as dionin (ethyl-morphine hydrochlorate) and heroin (diacetyl-morphine) there may be considerable difference.

As the employment of dionin in practice has mainly been in cases in which codeine was indicated in diseases of the respiratory organs, it is interesting to compare the action of dionin with codeine and heroin on the respiratory functions. This was the problem whose solution was first established by the investigation of Dr. Winternitz, whose experiments were made on healthy adults fasting in the Zuntz-Geppert respiratory apparatus, the character of respiration being first carefully studied for an hour, the morphine derivative then administered subcutaneously, and the observations then continued for two or three hours.

It has been shown that the administration of morphine produces no change in the oxidation processes in the human economy, consequently analysis of the expired air permits of the determination of the irritability of the respiratory center. Reduction of respiratory activity—reduction in respiratory volume and frequency—may be due to reduced irritability of the respiratory center, reduced irritability of the afferent nerves, or to diminished respiratory stimuli; the latter cause would explain the production of natural sleep and that produced by chloral. In order to test the degree of irritability of the respiratory center and its modification, if any, as produced by drugs, Dr. Winternitz employed the method of Zuntz and Löwy, which consists in the artificial mixture of carbonic acid with the in-

spired air (carbonic acid being a marked irritant of the respiratory center), and then determining the increase, if any, in the respiratory volume, and the character of the gaseous interchanges in the lungs as determined by the analysis of the expired air; while by determining the amount of  $\text{CO}_2$  required to produce a certain increase in respiratory volume before and after administration of the drug, the action of that drug on the respiratory center was established.

An analysis of Dr. Winternitz's results shows that, in the first place, the same divergence in action in animals and man exists between codeine and morphine, as regards their action on the respiratory center, as maintains in their action on the spinal cord; for, while it has been shown that in rabbits codeine depresses the respiratory functions more than morphine, Dr. Winternitz finds that codeine is in man practically without action on the respiratory center, both respiratory volume and frequency being unchanged by full doses of codeine, while the irritability of the respiratory center was in no case reduced.

The author's experiments with dionin showed a similar state of affairs. In six instances the administration of dionin both subcutaneously and by the mouth, in doses of  $\frac{2}{3}$  grn. to 1 grn., failed to produce any modification in respiratory volume or frequency, and in no case was there any reduction in the irritability of the respiratory center. It should, however, be noted that in two experiments made on one individual there was an increase in the respiratory volume after the administration of dionin, while in the same person the administration of morphine and heroin produced a marked decrease in the respiratory volume.

The value of the above investigation can be scarcely overestimated when it is remembered that the administration of dionin is especially called for to relieve the cough in the early stages of phthisis, a condition above all others where decrease of respiratory activity would be a most serious drawback to the value of any drug.

Experiment, therefore, confirms clinical experience as to the value of dionin as a pulmonary sedative. Contrasting dionin

with heroin, a different state of affairs presents itself. When both of the hydroxyl groups in the morphine molecule are replaced by acetyl—that is, the radical of acetic acid—diacetyl-morphine, or heroin, is produced.

It has already been determined that heroin is a far more active heart-poison than morphine.<sup>11</sup> Dreser,<sup>12</sup> from experiments made on rabbits, found that heroin diminished the frequency of respiration, the length of inspiration being increased and the power of expiration augmented. While he claims that paralysis of the respiratory center does not occur, he admits that its excitability is diminished.

Harnack, from experiments made on dogs, on the other hand, confirms Dott and Stockman in describing heroin as a more dangerous respiratory poison than even morphine; while Strube,<sup>13</sup> from experimental studies of heroin on animals, in a general way confirmed the results of Dreser, though he found it as powerful a respiratory poison as morphine. He states that heroin has a more marked action than codeine on the respiratory center, but its narcotic action is less than that of morphine.

As the danger of applying results of experiments made on the animals as therapeutic indications for the use of drugs in man has already been alluded to, the experiments of Dr. Winternitz as to the respiratory action of heroin in man are of special value. These experiments on man directly contradict the results found in rabbits by Dreser. Instead of increasing respiratory volume, Dr. Winternitz found that the administration of heroin decidedly slowed respiration (as Dreser also states), but that at the same time the respiratory volume was decreased, and that these results were due to the decreased irritability of the respiratory center produced by heroin.

As a drug can only conscientiously be recommended as a pulmonary sedative which, while relieving the irritation, does not at the same time restrict or depress

respiratory activity, we find still further ground for supporting the position already assumed by so many reputable clinicians as to the value of dionin. While often it is so necessary to relieve cough, from the pain, exhaustion, and sleeplessness which it entails, it is quite as frequently impossible, as in young children and feeble subjects, to employ morphine, from its depressing influence on the respiratory center, the digestive disturbance which its use entails, the danger of developing the morphine habit, and the toxic symptoms which so frequently follow the use of only small doses. Consequently, codeine has in these cases largely taken the place of morphine; but in dionin we seem to have found a remedy even more active than codeine, and free from its disadvantages.

Dionin reduces the irritability of the air-passages and so reduces abnormal reflex-stimulation, without at the same time affecting the normal activity of the respiratory center or interfering disadvantageously with expectoration. Experiment in healthy individuals thus confirms the experience acquired at the bedside.

Dionin thus promises to become a valuable member of the group of pulmonary sedatives, remedies which lessen the irritability of the respiratory center or nerves connected with it, and thus diminish cough and spasmodic difficulty of breathing. These remedies may act in one or more of three ways. They may remove the exciting irritant; they may directly lessen the excitability of the respiratory center; or they may directly reduce the irritability of the sensory (afferent) nerves of the respiratory tract.

Under the first group are those remedies which, locally applied, exert a soothing effect, and those expectorants and heart-tonics which, by diminishing congestion, lessen the irritation causing the cough. Under the second group, morphine may be taken as a type, while the action of dionin evidently falls under the third category; for, although as yet no experimental evidence had been adduced in this respect, its analogy to codeine, which is known to re-

<sup>11</sup>Dott and Stockman, *Proceedings of the Royal Society of Edinburgh*, 1890, p. 321, and E. Harnack, *Münch. med. Woch.*, 1899, No. 27.

<sup>12</sup>*Pflüger's Arch.*, 1898, p. 485.

<sup>13</sup>*Berl. klin. Woch.*, 1898, No. 7, p. 994.

duce the irritability of afferent nerves, especially of the abdominal viscera, makes it probable that dionin acts in the same way on the sensory nerves of the respiratory tract.

## Plant Enzymes as a Possible Factor in Drug Actions

It has long been a puzzling problem of pharmacology as to what it is that gives some vegetable drugs their therapeutic value. Supposed active principles are sometimes isolated and later found to account only partially for the properties displayed. Drugs, too, sometimes gain in efficacy by being kept, while others gradually lose all their virtues and become inert. What is the secret of these changes and of this power?

Of late years there has been a great deal of speculation regarding the various enzymes or soluble ferments that are supposed to exist in the animal body, and much work has been done toward isolating a number of new enzymes both in the vegetable and the animal worlds. Pathologists and physiologists are studying them with great zeal, and the feeling is gaining ground that they may be very important factors in both the cause and the cure of disease. The toxins and antitoxins are by some believed to be related to the enzymes, and to benefit or harm the organism by changes analogous to those wrought by known soluble ferments.

From the side of pharmacy now comes a suggestion that much of the efficacy of our extracts and tinctures may be due to vegetable ferments contained in them, and that the supply of digestive and other ferments of the body may all be drawn from the vegetable world through our food and our medicine.

J. W. England<sup>1</sup> has advanced this theory. The thought was evidently inspired by the reading of a recent English work on "Soluble Ferments and Fermentation," by Prof. J. R. Green, as England quotes extensively from this work, and then draws some conclusions on the basis of the data thus acquired and added to other facts drawn from various sources. The best

known enzyme is probably pepsin, and it may be taken as a type of the whole. Next to it comes diastase, which converts starch into sugar. The way in which these and others of the same class are affected by temperature and environment is pointed out to be much the same as the way in which the generality of vegetable remedies, whose natures are a mystery to us, are affected. According to Green, it is probable that diastase is the most abundant, being, he believes, present in every living vegetable cell. It is obtained from the seed of barley (*Hordeum distichon*) which has been caused to enter the incipient state of fermentation, and dried. Leguminous plants are especially rich in it, the diastatic activity of the common pea (*Pisum sativum*) being nearly one-half that of malt. It has been found in the potato, in gum Arabic, in the latex of *Ficus elastica*, *Carica Papaya*, and *Papaver somniferum*, and also in certain fungi, such as the *Aspergillus niger*, and yeast cells, and it is excreted by bacteria.

Animal diastase is widely distributed in the human body, being found in the salivary, pancreatic, and intestinal juices, and possibly in blood and lymph. It is identical with diastase of vegetable origin. Brown and Heron have shown pancreatic and malt diastase to be the same.

The following enzymes and the functions they perform will give the reader some idea of the large number that have lately been discovered. England has collected and condensed the descriptions of them as given by Green:

Inulase is an enzyme present in the fleshy roots of *Inula Helenium* (inula) and decomposes inulin. Green has recently obtained it from the bulb of squill (*Scilla*). It has no action on starch and works best in a neutral or very faintly acid solution, excessive acidity or alkalinity destroying it.

Cytase is a cellulose-dissolving enzyme, which modifies the composition of cell-walls. It is secreted by fungi and plays an important part in their development and their nutrition. It has been found in higher plants, but has not the wide distribution of diastase. It exists in germinating barley, and in certain varieties of the barley not germinating; also in rye and oats, the latter being especially rich in it.

Invertase is the enzyme that inverts cane-sugar. It is found in fungi, in certain micro-

<sup>1</sup> *Alumni Report* (Phil. Col. of Pharm.), XXXVI, p. 5.



organisms, in the petals of *Robinia viscosa*, *R. pscud-acacia*, *Papaver Rhæas*, some varieties of *Rosa*, in the ripe fruit of the banana and in the pollen of *Helleborus*, *Lilium*, *Narcissus*, *Richardia*, and *Zamia*. It has been found in the alimentary canal of mammals, being confined to the small intestine, its purpose being primarily to convert cane-sugar into other sugars that can be assimilated by protoplasm. The power of the enzyme is practically inexhaustible; a sample which had induced inversion of 100,000 times its own weight of cane-sugar was found by O'Sullivan and Tompson to be still active.

Glucose (maltase) is the enzyme that hydrolyzes maltose. Compared with invertase it is relatively weak, hydrolyzing only about 100 times its weight of maltose. It has been found in the blood, and the tissues and juices of the animal body. Kröber is of the opinion that it exists in normal malt; it is found conspicuously in various species of yeast.

Trehalase is the ferment that effects the hydrolysis of trehalose, the sugar found in Syrian manna, in ergotized rye; and also in certain fungi.

Raffinase (melibiase) is the enzyme decomposing the sugar known as raffinose; it is found in the root of the sugar-beet, the seed of the cotton plant (*Gossypium*), in barley and wheat during germination, and in certain yeasts.

Melizitase is a ferment capable of hydrolyzing a sugar (melizitose) found in certain mannas.

Lactase—Mineral acids hydrolyze milk-sugar, yielding glucose and galactose. There exists in the animal body a soluble enzyme capable of carrying out similar work, called lactase. The mucous membrane of the jejunum of new-born children has been shown to be capable of hydrolyzing lactose.

Of the special ferments that decompose glucosides, the best known is emulsin, from the seeds of the bitter almond, and which hydralizes the glucoside amygdalin. The same ferment is present in the sweet almond, but not associated with amygdalin. The following are other members of this group:

Myrosin is the characteristic enzyme of the *Cruciferae* and several closely allied natural orders, being found in the seed of black mustard (*Sinapis nigra*), in the outer integument of the seed of *Carica Papaya*, and the extract of ground white mustard seed, and in a very large number of plants belonging to different natural orders. Erythrozome is found in the root of the madder plant (*Rubia tinctoria*). Rhamnase is present in the seeds of the Persian berry (*Rhamnus infectorius*). Gaultherase (betulase) is an enzyme occurring in the bark of *Betula lenta*, in *Gaultheria procumbens* (leaves and berries), *Spiraea Uhnaria*

(root), and several species of polygala. It hydrolyzes gaultherin with the formation of methyl salicylate (oil of wintergreen) and glucose. Tannin, according to Strecker, is a glucoside, and undergoes hydrolysis, yielding gallic acid and glucose. When certain gall infusions ferment, the tannin disappears, and gallic and ellagic acids and glucose replace it. The enzyme has not been isolated.

Pepsin and trypsin are the chief enzymes that decompose proteids and produce peptone. Pepsin has never been found in the vegetable kingdom. Trypsin is the characteristic enzyme of the pancreatic secretion of the higher animals, and the chief agent of the proteolysis which takes place in plants. While trypsin acts most vigorously in a faintly alkaline solution, it can act in a weakly neutral or weakly acid solution. In the pancreatic secretion, it is associated with several other ferments, among which are pancreatic diastase, a form of rennet and lipase.

The chief enzymes of the proteolytic class of vegetable origin are papain, obtained from the juice of *Carica Papaya*; bromelin, from the fruit of pineapple (*Ananassa sativa*); the trypsin of germinating seeds and the enzyme of the secretion of *Nepenthes*, one of the so-called pitcher plants.

Green has noted the existence of a vegetable trypsin in the germinating seed of the castor oil plant (*Ricinus communis*). The juice of the fig tree (*Ficus Carica*) contains a powerful enzyme capable of dissolving proteid substances. Various forms of bacteria also are known to form proteolytic enzymes.

Lipase is found in the intestinal tract, and also in the secretion of the pancreas. It has a wide distribution in the animal kingdom, and is also found in the vegetable kingdom, where it plays an important part in the utilization of the fatty reserve products stored in many seeds. In its hydrolysis of fats it liberates glycerin and free fatty acids. Lipase was discovered in the germinating seed of castor oil plant (*Ricinus communis*) by Green in 1889.

The chief clotting enzyme is rennet. It occurs in both the animal and vegetable kingdoms; the chief source in the former being the mucous membrane of the stomach of young animals, particularly the calf. Rennet has also been found in the juice of the papaw (*Carica Papaya*), in bromelin in the juice of the pineapple, in the bast of the stem bundles of *Clematis Vitalba*, and in many seeds, such as *Datura Stramonium*, *Pisum sativum*, *Lupinus hirsutus*, and *Ricinus communis*. It acts in acid, neutral or alkaline solutions, and is most probably proteolytic in action.

Thrombase (the fibrin-ferment) is the animal enzyme that causes the coagulation of shed-blood; it more closely approaches rennet than any other enzyme so far discovered.

Pectase is the plant-enzyme that with pectin

causes the formation of the vegetable jellies of many ripe fruits. (Pectose is found in cell-walls and cell-sap and is readily converted into an allied body, pectin, by the action of an acid.) Free acids interfere with the activity of pectase, a neutral medium being almost essential for the production of jelly. More than 0.1 per cent. of an acid in the juice of fruits will inhibit the ferment's action and may prevent gelatinization. By the action of pectase, pectose or pectin can be converted into two gelatinous bodies, pectosic and pectic acids. Pectase is widely distributed in living plants; its function being connected with the changes that the cell-membrane undergoes during the life of the cell.

Oxidizing enzymes are known as oxidases. Laccase is the oxidase concerned in the production of lacquer varnish from the crude sap of the lac tree of Southeast Asia. Laccase has been found in the roots of the beet, carrot, and turnip, in the tubers of the potato, in the fruits of the apple, pear, quince, and chestnut; in the vegetative parts of clover, rye grass, and asparagus, and in germinating seeds, especially of plants of the *Leguminosæ*. The activity of laccase appears to be associated in some way with the presence and amount of manganese it contains, no other metal being capable of replacing it. Laccase exists in a considerable number of fungi; a similar ferment has been found in the gills, labial palps, and blood of certain molluscs.

Tyrosinase, another oxidase, is found in the fungus *Russula nigricans*, Bull.; also in many genera of fungi, and in dahlia and the beet-root. Bourquelot has found tyrosinase to act on all the cresols, resorcinol, guaiacol, thymol, carvacrol, *a* and *b* naphthol and ortho meta, and paraxilenol. He noticed, also, that it was effective when dissolved in a mixture of water and either ethyl or methyl alcohol, provided that not more than 50 per cent. of the spirit is present. The alcohols themselves are not affected by it.

The various flavors and odors which form the "bouquet" of different wines have generally been associated with the peculiarities of the fermentations induced by the different yeasts employed. Tolemi has recently brought forward reasons for thinking that some of them may be due to definite oxidases extractable from the yeasts.

Beer yeast is claimed to contain an oxidase; likewise, the leaves of *Isatis alpina* and other indigo-yielding plants; ripe olives (which appear to oxidize the oil to oleic, acetic, and sebatic acids) and the expressed juice of aconite and belladonna. The color of brown bread is said to be due to an oxidase in the bran.

The oxidative power of human blood and various tissues strongly suggests the presence of an oxidase.

Spitzer has ascertained that different tissues owed their oxidizing powers to the nucleo-proteid substances which they contained, and that the oxidative energy was proportional to the

amount present. This work has been confirmed by researches that show the action to be due to a soluble enzyme, which is destroyed by boiling and by prolonged contact with alcohol. Oxidases have been found also in the tissues of certain animals.

Alcoholic fermentation is due to an enzyme which Buchner has named zymase. It has been obtained from yeast, peas, and barley.

England, after presenting this array from Green's work, then proceeds to show that the behavior of a large number of drugs indicates the presence of many other enzymes not yet isolated or perhaps in some instances not suspected. The behavior of some drugs on drying is particularly referred to by Green in this connection. He says:

In drug-drying the enzyme may become exhausted before a glucoside, for example, is entirely decomposed, or a small amount of enzyme only may be present; in either case variable quantities of decomposition products would result, and this may explain, in part, the variability in the percentage of proximate principles of some vegetable drugs.

Fresh frangula bark is a powerful gastrointestinal irritant, capable of causing violent catharsis. Dried and seasoned, it is much less irritating and simulates rhubarb root in action. The British Pharmacopœia of 1885 directed that it should be at least one year old before being used.

A somewhat similar change may take place during the drying of rhubarb root, which, when gathered, contains about 80 per cent. of water, and when dried contains emodin and sugar. The fresh root is seasoned for a year before being exported. May it not be that the emodin and sugar in the dried root have been formed from a pre-existing glucoside?

The fact that the active principle of senna leaves is obtained in a manner similar to that of certain enzymes, that it is soluble in water and insoluble in alcohol, that prolonged heating of the aqueous solution destroys it, that it is readily affected by free alkalis and free acids, and that it is active only in a neutral or faintly acid solution (acid from an organic acid), strongly support the belief that the activity of the leaves may be due to an enzyme. The cathartic

acid and the sugar present in the leaves may have arisen from a pre-existing glucoside by the action of an enzyme.

There is no doubt as to the influence of fermentation in the curing of the green pod of the vanilla plant (*Vanilla planifolia*). When gathered, the pod is wholly destitute of aromatic properties, and contains about 80 per cent. of water. It requires three or four months to "cure," during which time it is exposed to air during the day, and put into caldrons, covered with blankets, and "sweated" at night. According to Bucholz (U. S. D., 1899, p. 1443), the aroma is due to chemical changes that take place during and after the curing of the fruit.

The author next calls attention to squill, wild cherry, croton, wintergreen, castor oil, and other remedies that probably owe their efficacy to the good services of enzymes in developing their active constituents. Of ergot, he says: The true nature of the active principle of the official ergot is an unsolved problem. Dragendorff's process for obtaining two of the most active constituents of ergot, sclerotic or sclerotinic acid and scleromucin, is enzymic in principle (see U. S. D., 1899, p. 515). Voswinkel has obtained from ergot a brown amorphous substance, which he proved by hydrolysis to yield mannose. This is a hemi-cellulose body, and the name mannan has been given to it. He states that Dragendorff's sclerotic acid and scleromucin are identical with mannan (*Pharm. Central-halle*, 1891, p. 531). Since the chemical principles so far isolated have failed to yield all the clinical effects of the drug, may not the activity of the latter be due to an enzyme as powerful in its way as croton or ricin? The wide distribution of soluble ferments among fungi lends plausibility to this view, as well as the fact that the sugar trehalose, formed by the ferment trehalase, is present in ergotized rye.

Catarrhal Pyelitis and Cystitis:

Solut. Potassa.....2 fl. dr.  
Oil Yellow Sandal.....2 fl. dr.  
Cinnamon Water.....to make 8 fl. oz.  
Two tablespoonfuls three times a day.  
—SAUNDEY, *Renal and Urinary Dis:*

Cannabis Indica

CANNABIS INDICA has been the subject of recent research work at the Physiological Laboratory of St. Thomas' Hospital, London, by Dr. W. E. Dixon.<sup>1</sup> The work was begun at the suggestion of Prof. Dunstan, who prepared the samples at the scientific laboratories of the Imperial Institute. The animals used in the experiments were principally cats and dogs, but the results were verified as far as possible on human subjects. The object of the research was to find out, if possible, the cause of the irregularity in action of this drug, to determine its exact physiological effects, and the therapeutic uses to which it might be put.

In the experiments the variation in the action of the same amount of the same preparation administered to two similar animals of the same weight, and as nearly as possible under the same conditions, was quite remarkable. In one it produced narcosis and in the other no perceptible results. Three times the original dose had to be given to the latter animal before it gave any signs of toxic effect. It was also found that different samples of the drug vary widely in their activity. After a series of experiments on this point, the author is convinced that hemsps of different seasons, of different places, and prepared in different ways, contain different amounts of resin and vary widely in their activity. When kept sealed and in the dark no appreciable change could be found in its quality, but when exposed to sunlight and air it deteriorated.

Animals, after the administration of cannabis by the mouth, show symptoms in from three-quarters to an hour and a half. In the preliminary stage cats appear uneasy, they exhibit a liking for the dark, and occasionally utter high-pitched cries. Dogs are less easily influenced and the preliminary condition here is one of excitement, the animal rushing wildly about and barking vigorously. This stage passes insidiously into the second, that of intoxication, in which the symptoms may be divided into two groups, the mental and the physical.

The effect on the disposition of dogs and

<sup>1</sup>*British Med. Jour.*, No. 2028, p. 1354.



cats is very marked. However vicious they may be in their normal state, they become docile and affectionate when under its influence. On man the inhalation of the fumes of the powdered *ganja* produces an exhilaration and refreshed feeling which is particularly noticeable after fatigue, mental or physical; these effects are more pronounced than those produced by either tea or alcohol, and give rise to no noticeable subsequent reaction. Further, the feelings of the patient are sufficient to regulate the dose, and there is little danger of taking an excess. Should the inhalation be continued after the desired effect has been produced, he loses some self-control, manifests a desire to laugh at everything, and becomes very talkative. In the space of some twenty minutes to half an hour the normal condition recurs, and all feelings of exhaustion, headache, etc., have disappeared.

The physical effects produced are partial anesthesia all over the body, general sluggishness in response to every kind of stimuli, and indifference to all forms of mild stimuli, such as the pricking of a pin. Dogs placed on their feet will stay thus till forced to move by their ataxia, while if placed on their side they will make no effort to stir. Animals generally become more and more listless and drowsy, and eventually sleep three or four hours. The pupils always dilate, and during complete narcosis barely react to light.

*Cannabis Indica* has a very powerful effect upon the heart; it first acts on the cardiac center and causes slowing, with a consequential fall of blood-pressure, followed by a permanent rise, the impulses passing down the vagi; secondly, it has a direct action upon the heart itself, producing marked slowing, the dropping of beats, and complete inhibition, which may or may not be permanent.

In small doses there is generally some tendency towards quickening of respiration; this quickening may also be seen during the "stimulation stages" after much larger doses. Animals deeply under the influence of hemp invariably show some slowing in respiration, which also tends to become deeper. Death from the hemp almost

invariably occurs as the result of cardiac failure, and respiration continues in spasmodic gasps for some minutes after the heart has ceased to beat. In a few cases the heart and respiration appear to cease simultaneously, and very exceptionally respiratory failure may precede cardiac.

Where an immediate effect is desired, the drug should be smoked, the fumes being drawn through water. It is not dangerous: the effect is never alarming, and it leads to no habit, the author states. It is a useful and refreshing stimulant and food accessory. By the mouth it is a narcotic, and when given this way the nervous effects may be serious enough to cause alarm, yet no danger should be apprehended whilst the heart remains regular and strong.

The author does not expect that it will become popular until its active principle has become isolated and its dose made of fixed strength. From actual trial upon himself, he believes it to be an exceedingly useful therapeutic agent, not likely to be abused.

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**Pyramidon** (dimethylamido-antipyrine) has been studied physiologically and clinically by W. Filehne, and K. Spiro.<sup>1</sup> It is a whitish-yellow, crystalline, tasteless powder, soluble in ten parts of water. Its physiological action is like that of antipyrine, reducing temperature, and increasing blood-pressure. It is very active even in very small doses, the authors state, its effect being longer maintained than that of antipyrine and less severe.

Useful doses vary from 1½ to 10 grn., while 6 grn. are sufficient to cause headache. The author found no modification of nephritis in three cases of this disease in which pyramidon was given to relieve headache, but the latter was quickly relieved. In twelve cases treated for reduction of temperature, doses of 1½ to 10 grn. of the drug were given, with invariable reduction of temperature in a few hours, and coincident slowing and strengthening of the pulse and increased comfort of patients.

The authors affirm the value of the remedy because of its calmative and continuous action, the smallness of dose, its tastelessness, solubility in water, and its evident superiority over antipyrine.

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<sup>1</sup>*Nouveaux Remèdes*, 1900, No. 3, pp. 50-55.

# PROGRESS IN MATERIA MEDICA

**Pilocarpine** is reported by Dr. S. MacCuen Smith<sup>1</sup> to have given good results in *chronic otitis media*. He says that strychnine may be combined with it in order to avoid any untoward effect on the heart. He begins with  $\frac{1}{16}$  grn., and gradually increases until he secures profuse sweating. The dose is repeated every alternate day until six or eight doses have been given,  $\frac{1}{6}$  grn. at a dose usually being found to be sufficient. The treatment relieves the tinnitus which is such an annoying symptom in these cases. If strychnine is not used before giving the pilocarpine, a dram of whisky in hot water is a good stimulant and will aid the sweating. If a glass or two of ice water be taken immediately before administering the pilocarpine, or if the body be wiped with a sponge wet with cold water, such measures will aid in securing full effects from the drug. The author's assistant had one case in which there was remarkable tolerance of the drug, and in which he found it necessary to administer  $\frac{2}{3}$  grn. before securing copious diaphoresis.

**Epinephrin** is the name given by Abel<sup>2</sup> to the body he has isolated from adrenal extract, and to which he attributes the well-known effects on blood-pressure of this substance. From the reactions of epinephrin it would seem to belong to the group of animal alkaloids and the formula  $C_{17}H_{15}NO_4$  has been determined for it. (See MERCK'S ARCHIVES, I, No. 2, p. 47.) It may readily be obtained from aqueous extracts of the adrenals by the action of benzoyl-chloride, and from the benzoyl combination thus formed the author was able to isolate the free base and make a picrate, bisulphate, hydrochlorate, and hydrobromate, as well as a triacetynephin and a phenylhydrazine derivative. Its various decomposition reactions seem to assign to epinephrin a place among the pyrrol or skatole bases; treatment with dilute alkalis forms a dark pigment, which the author denominates as epinephrinic acid and a base of coniin- or pyridin-like odor. On fusion with potassium appreciable quantities of skatole result.

The free base cannot be produced except at the expense of its physiological efficacy. On the other hand, most of its salts react on the system very energetically; they have a slightly bitter taste, cause a partial anes-

thesia of the tongue, and produce a local vaso-constriction. When introduced into the circulation, small doses at first excite and then centrally depress respiration; heart-failure follows larger amounts. The insolubility of the preparation, however, which increases on keeping, unfortunately renders it of less avail therapeutically than might otherwise be expected; since the toxic dose is far above that required to produce the physiological action. Uroerythrin, the normal pigment principle of the urine, in part exhibits similar properties to epinephrin and the probability of a relationship between the two bodies seems very great.

**Iso-ethyline** is the name of a new antiseptic which Dr. G. M. Randall,<sup>1</sup> of Augusta, Me., hopes will prove capable of keeping milk from spoiling, while harmless. He says it is formed by the destructive distillation of ethyl alcohol, as formaldehyde is produced from methyl alcohol, and possesses some of the characteristics of the latter. Its germicidal power, however, is slightly below that of formaldehyde. Experiments lately made by the author on animals lead him to believe that in minimum strengths capable of arresting bacterial growth the iso-ethyline does not interfere with digestion. Being volatile at 100° F., he thinks that the body temperature is sufficient to drive it out of the milk and thus keep it from interfering with the action of the gastric juice.

**Orthoform** has been used successfully by Dr. W. P. Nicolson,<sup>2</sup> of Atlanta, Ga., for the purpose of making an arsenical paste painless when applied as an escharotic in removing various kinds of growths. He reports the case of a man of sixty years of age who came to him for relief from a growth on the right side of the head, about the size of a hen's egg, projecting outward. The base of the tumor extended a short distance in front of the ear. The surface was covered with a dried scab, from under which blood oozed at the slightest touch. As the tissue seemed very friable, a somewhat novel means of removal was employed. A thread of silkworm-gut was passed around the base, and by a rapid sawing motion the growth was quickly removed flush with the skin. After controlling the severe bleed-

<sup>1</sup>New Orleans Med. and Surg. Jour., LII, p. 456.

<sup>2</sup>Zeitschr. f. physiolog. Chemie, XXVIII, p. 318.

<sup>1</sup>Boston Med. and Surg. Jour., CXLII, p. 123.

<sup>2</sup>Atlanta Journal-Record, LI, p. 738.

ing by pressure applied a short time, the raw surface was freely sprinkled with powdered orthoform. Then, with a powder made of equal parts of arsenous acid and powdered gum acacia, orthoform was mixed without noting the proportions. This was then made into a paste and applied to the cut surface and the patient given a few tablets of morphine to take when the pain became severe. The next day found the tablets unused, the patient having had no pain since the paste was applied. The result was perfect, the growth being entirely destroyed.

**Formaldehyde** as a *disinfectant* was the subject of a paper lately published, and which was read by Dr. W. K. Jaques,<sup>1</sup> of Chicago, at the last meeting of the American Medical Association. He first calls attention to the power of this gas to penetrate the cell walls of bacteria and destroy them. It retards their growth and destroys invading germs when they attack the respiratory tract. In bronchitis and pneumonia, especially in children, he states that the growth of germs may be retarded and the respiratory tract made unsuitable for their invasion by diffusing this gas through the air breathed by the patients. Such treatment, he says, means speedy recovery. In cases of diphtheria, the membrane is so thick that patients could not endure the gas strong enough to penetrate it. As soon as the bactericidal power of formaldehyde became known to the members of the Chicago Board of Health, they at once became interested in it, trying many lamps and many devices for its manufacture from methyl alcohol. It was finally decided by them that the best results were reached by evaporating the 40-per-cent. solution of the market. When the evaporating is rapidly done, polymerized formaldehyde is left in the retort as a white waxy substance. This slowly unites with the air and again forms formaldehyde.

For disinfecting purposes, it is important to cause the gas to leave the solution quickly and impregnate the air of the room. To do this the globules of the solution should be as finely divided as possible, so that all parts will come in contact with the air. This is accomplished by throwing a fine spray of the solution on a suspended sheet.

Dr. Jaques states that in formaldehyde we have a disinfectant that will not injure property and that will do the work of disinfecting in the shortest possible time, thus putting people to the least possible inconvenience.

For use in the sick room the simplest and

most effective way is to put two tablespoonfuls of the formaldehyde solution of the market into an earthen dish and pour into this a pint of boiling water. This dish may then be placed over a lamp or chafing-dish and kept below the boiling point. Near this point the gas is driven off in the greatest abundance. Above this evaporation takes place, with the production of paraform or polymerized formaldehyde. By modifying the heat the amount of gas in the room can be controlled. It should be kept just below the point of irritation. As the patient becomes accustomed to its presence it becomes less irritating. It does not interfere with other remedies and can be used when the patient is asleep.

The advantages of formaldehyde disinfection over all other methods are numerous, the author continues. Although a destroyer of odors, it has scarcely any odor. It does not attack and injure metals, as does sulphur, and there is no danger from fire. It attacks the weakest point of our pathogenic enemies' armor. It is not, however, a destroyer of lice, bedbugs, and other vermin. Neither will it injure the parasites that infest plant life. It can only be depended on to destroy pathogenic germs whose structure permits sufficient penetration to alter their protoplasm, and for this purpose it has no equal as a disinfectant.

**Alcoholic Stimulants** are said by Dr. F. A. Castle,<sup>1</sup> of New York City, to owe their efficacy as therapeutic agents not to the alcohol they contain, but to the minute quantities of ethers that are present. He points out the fact that high-priced, well-aged wines and liquors are not valued in proportion to their alcoholic contents, but in proportion to the quality and amount of the contained ethers. In spite of the fact that chemical analysis is unable to give the relative proportions and amounts of these ethers that are present with the  $C_2H_5OH$ , they, none the less, "hold about the same relation to the liquor as does the part of Hamlet to Shakespeare's rendering of it." The author states also, that "it is the volatile ethers produced by oxidation of the alcohol and other elements of wine and distilled spirits which give to them not only their commercial but their chief therapeutic value. Therefore, when their use is needful, be careful to possess them. When a fresh bottle of wine or liquor is opened, decant its contents at once into smaller bottles and cork them tightly. Then the last-used will be as serviceable as the first, and not of lesser value or essentially harmful



as when taken only from the original container, from which, because of its frequent opening, the volatile ethers have mostly escaped. He who fancies his ability to get as good effects from a mixture of corresponding proportions of alcohol and water will only fool himself and his patient."

**Arsenic** was found in animal tissues by Armand Gautier (see *Bul. de l'Acad. de Med.*, 1889, Dec. 5, p. 561) most abundantly in the thyroid gland, less so in the thymus, the skin, and the brain—notably in the sheep, the calf, and the hog—existing in these organs chiefly under the form of nuclein iodides. The study was pursued to learn the rôle of arsenic in the economy, its mode of circulation and elimination. The study was extended to a few common foods, normally the source of the arsenic.

A. Gautier<sup>1</sup> now reports that he found in man 0.00075 Gm. of arsenic in 100 Gm. of fresh thyroid gland. It is constantly present, more richly so in man than in the dog, sheep, or hog.

It was found that 148 Gm. of a hog's skin, deprived of its subjacent cellular tissue and hair, contained a slight trace of arsenic. In myxedema, the thyroid being at fault, functional and pathological alterations take place in the skin.

He found a trace in 42 Gm. of the hair of the head of a man of twenty-six years, who had never taken any preparation of arsenic, and a slighter trace in 55 Gm. of the hair of a woman of forty-eight years. Less than 0.00005 Gm. was obtained from 150 Gm. of beef-horn, which points to elimination by hair and nails. In young patients to whom he had given cacodylic treatment hypodermically for several years, he found a notable lengthening and thickening of the hair.

A little arsenic was found in the thymus of a lamb.

Having found the drug in some of the organs of the fetus and in young suckling animals, he examined the maternal blood, the ovary, the uterus, and the mammae. The mammae (300 Gm.) of a cow, not pregnant and not giving milk, gave 0.0004 Gm., and two quarts of milk gave a trace of arsenic. He found a slight trace in 200 Gm. of fresh bone. He thinks its presence there is substitutive for phosphates, is variable in amount, but constantly present. It was present in the brain of two still-born children, but not in that of a third.

Careful research, made in accordance with the method of procedure adopted by the writer, failed to find arsenic in the liver, kidney, spleen, muscles, testicles, pituitary

gland, mucous membrane, cellular tissue, lymphatics, salivary glands, suprarenal capsules, bone marrow, uterus, ovaries, blood urine, and feces.

Examination of bread, meats, eggs, and fish revealed no trace of arsenic; the only flesh yielding it was that of the tissues above examined: viz., milk, thymus, skin, and brain. The vegetables furnishing it were turnips, cabbages, potatoes; also cereals.

From a medico-legal point of view, the finding of arsenic in the tissues above-named found to be free from it, or at least the finding of it in quantity greater than 1-20,000,000th of the weight of the organ, argues for its having been taken either as medicine or criminally during life.

**Calcium Eosolate** is reported by Dr. Heinrich Stern,<sup>1</sup> of New York City, to have proved valuable in the treatment of *diabetes insipidus*, *diabetes mellitus*, and *chronic ulcerative phthisis*. It is a sulphosalt of the aliphatic creosote esters, and is said to contain in its composition in the neighborhood of 25 per cent. of creosote. Its formula is given as  $(C_9H_7S_3O_{12})_2Ca_3$ . In large doses it produces griping pains in the intestines, along with diarrhea. The therapeutic dose is from 4 to 10 grn. three or four times a day. It is a grayish powder, feeling to the touch like finely pulverized pumice-stone. Its odor is slightly pungent and somewhat ethereal, its taste a little acrid and leathery. It is soluble in from 8 to 10 parts of cold, and in 7 parts of hot water. It is very slightly soluble in alcohol, and insoluble in chloroform and turpentine, but is readily dissolved by hydrochloric, by citric, and by some other organic acids, while it dissolves only slowly in acetic acid.

The doctor gives the history of one remarkable case of diabetes insipidus, in a boy of sixteen years, that he treated with this remedy. He was passing over  $1\frac{1}{2}$  gal. of urine per day that had a specific gravity lighter than water. He was dwarfed in stature to that of a child of seven years, and for a long time had shown no signs of development. Under the calcium eosolate treatment, in conjunction with 45-min. doses of fluid extract of ergot four times a day, he for the first time in years steadily began to increase in weight, lost his nervousness, the hydruria gradually diminished; though occasional increases occurred for a brief period, there was an increase in the excretion of solids, and thirst was diminished. At the time of the report the patient was still continuing to improve.

Five cases of diabetes mellitus under

<sup>1</sup>*Le Bul. méd.*, 1900, No. 6, p. 116.

<sup>1</sup>*Four. Amer. Med. Assoc.*, XXXIV, p. 467.

treatment with calcium eosolate and a milk diet ceased excreting dextrose, gained in weight, and improved otherwise. One of the cases at a later date died of endocarditis. Ten cases of phthisis showed decided signs of improvement under small doses of the eosolate in conjunction with other remedies.

**Dysentery** is treated by a Russian military physician, Dr. J. O. Samitchouk,<sup>1</sup> in the following way: As the first dose, 4 to 5 dr. of sodium sulphate are given; about two hours later, 2 dr. of sodium bicarbonate; two hours later, 4 grn. of ergotin. This amount of ergotin is repeated once or twice a day, according to the amount of blood found in the stools. The following is also given:

Bismuth Subnitrate.....	4 grn.
Tannin .....	4½ grn.
Quinine Sulphate.....	2 grn.

One powder. Give three or four such powders a day.

After each stool, in old cases, tannin douches are used in addition, 1 dr. to 4 or 5 glasses of warm water. As food, a decoction of barley, to which are added butter, eggs, and bread. Tea is given for drink.

Recovery is said to result in two or three days in recent cases.

**Oil of Turpentine** has been used in thirty-seven cases of *diphtheria* by Dr. W. C. Wright,<sup>2</sup> of Unionville, Mich., without a death or any alarming symptoms. He claims to have given teaspoonful doses of this remedy to children from ten to sixteen years of age, at intervals of two hours, until from four to six doses were administered, and after waiting forty-eight hours, to have repeated the dosage. In five cases out of the thirty-seven such repetition was required. Twenty were discharged in twenty-four hours, and fifteen were not under care for more than four days, while two continued under observation for five days. Kidney complication was feared and watched for in every case, but in none did it occur. A few of the cases were complicated with vomiting, but this soon subsided on stopping the treatment. In nearly every case the temperature became normal within twelve hours, and remained so. In two cases the temperature ascended a second time, but returned to normal when the turpentine was repeated. In a few instances there was slight diarrhea which ceased on arresting the treatment. The additional treatment consisted of small doses of mercury biniodide and hydrogen peroxide

sprays, but the largest proportion of the cases did not have the last-named remedy applied.

The author asks that others give this method a trial, assures them that it was perfectly safe in his hands, and commends it for the use of poor patients because of its great cheapness. He advises others to use smaller doses of the turpentine than he did in the cases reported, but to supplement it with repeated doses of echinacea as suggested to him by later experience. He calls attention to the fact that he has observed a few cases of urinary complications from the use of turpentine in cases that were not diphtheritic. He believes turpentine is an antidote for the toxin of diphtheria.

**Guaiacol** has been applied externally for the reduction of high temperature with marked success by Dr. G. P. Stanley,<sup>1</sup> of Tamworth, New South Wales. He has used it on small children suffering from bronchopneumonia, and has found that it produces a speedy reduction of temperature, is easy of administration, and free from all ill-effects both local and general. The quantity used averaged 5 drops at a time, and required no dressing or covering. The skin showed no signs of soreness after seventy-six applications in one case. So far from there being any signs of collapse, it seemed to improve the condition of the patient quickly. The maximum reduction of temperature from an application is reached in about two hours, and amounts to from 2° to 4° when the temperature is high.

**Diphtheria Antitoxin**, according to Dr. J. A. De Armand,<sup>2</sup> of Davenport, Iowa, has been in use long enough to establish its value or worthlessness. He holds that its friends have too frequently gone into unreasonable ecstasies over it, while its enemies have resolutely closed their eyes to any good in it, and points out the fact that statistics may easily mislead one way or the other because of comparing unlike conditions. A dozen cases with a single death during a mild epidemic should not be compared with four cases of a virulent type where death claims all. To-day antitoxin has probably a larger following than any other remedy used in diphtheria, he claims, while it allows the use of other lines of treatment. Its one apparent drawback lies in the fact that the later it is used in the disease the less is the benefit to be derived. It should be used early and without delay. The opposition it is meeting but matches that which other

<sup>1</sup>*Bul. gén. de Thérap.*, CXXXIX, p. 153.

<sup>2</sup>*Post-Graduate*, XV, p. 183.

<sup>1</sup>*Australian Med. Gaz.*, XVIII, p. 522.

<sup>2</sup>*Med. Summary*, XXI, p. 337.



remedies have had to overcome. The history of vaccination does not show a single page unblotted by the antagonism of blatant opposition. Opponents ask why diphtheria antitoxin does not cure all cases. This is an idle question. As well ask why fire-engines do not save from destruction every house on fire.

The author closes his paper as follows: Putting aside all statistics as unreliable and capable of misconstruction and abuse by friend and foe alike, let the seeker after truth test antitoxin, never once forgetting that its use involves a surgical operation, and if he be faithful and careful he will soon pin his faith to the remedy and will approach the case of diphtheria with the confident tread of one who knows the weakness of the enemy, and who holds in his grasp the means of its dethronement.

**Iodipin** has been used by Dr. Kindler,<sup>1</sup> of the City Hospital, Moabit, per os, subcutaneously, and also in the form of an oil-pack. In several cases of gonorrheic articular rheumatism, in which the oil-pack was used, no better results were obtained than when other warm oil applications were made. The iodipin was even inferior to salicylated-oil and alcohol applications. The internal exhibition of iodipin was soon given up also, not because of any inferiority of action, but because of the objection to the oleaginous taste on long-continued exhibition. The subcutaneous injections were chiefly relied on, 10 Gm. (2½ fl. dr.) being injected daily, with a pause after every 10 injections. In making the injections, a needle having as large a lumen as possible was used in order to facilitate as much as possible the rapid expulsion of the iodipin from the syringe. The injections were made subcutaneously, and not intramuscularly, the canula being slowly inserted. The place where the injection was to be made was first anesthetized with ethyl chloride. No unpleasant complications, such as oil embolisms, pains after injection, or abscesses were observed.

The remedy was used particularly in those cases in which potassium iodide was not well borne, either because of the ready development of iodism or because gastric disturbances rendered its use impossible. Of eight cases of asthma in which iodipin was given, not one complained of any by-effects. Five were very soon improved, the bronchitic symptoms in particular being very rapidly suspended. In the three remaining cases the results were unsatisfactory. The treatment was ordinarily begun with doses of one teaspoonful of iodipin thrice daily,

per os, but in four cases the repugnance became so great in from four to eight days that subcutaneous injections had to be resorted to.

Iodipin was also used in five cases of tertiary syphilis. Two of these patients, exhibiting serious cerebral symptoms, such as papillitis, paralysis of the abducens, headache, etc., had previously been treated with large doses of potassium iodide, without in any way influencing the symptoms, especially the headache, and gastric disturbances forbade the further use of the remedy. After iodipin had been taken in teaspoonful doses twice daily, for five days, however, a remarkable improvement was observed in both cases, the headaches being relieved, and in the one case the paralysis also. In one case of cerebral syphilis, accompanied by severe headache and amaurosis, due to syphilitic chorioretinitis, iodipin was well borne, but afforded no improvement. One case of spinal syphilis, in which many inunction cures and large doses of potassium iodide had been ineffective, was also treated with iodipin, because of constantly recurring backaches, increasing spasms of the right limb, and the development of incontinence; 10 Gm. of the remedy were injected daily for ten days. On the fifth day the incontinence was diminished, and shortly after the spasms and backaches also. No by-effects were observed. In one case of extended serpiginous syphilides, with deep ulcerations on the nose, injections of 10 Gm. of iodipin daily for ten days brought about the healing of the ulcers.

**Bromide Sleep** is the name given by Dr. Neil Macleod,<sup>1</sup> of Shanghai, China, to the intense sleep produced by very large doses of the bromides. For from five to nine days the patient sleeps incessantly and cannot be aroused, cannot walk, stand, sit, speak, or carry on any of the higher cerebral functions. If left to himself he will not feed or drink; indeed, he cannot even ask for food or drink, being unconscious of these needs, but can be sufficiently nourished with milk during that time. He will pass urine and stools in bed if left to himself, but can be prevented from doing either by timely suggestion of these needs or being placed on a commode and held there for a few minutes every six hours. The loudest sound, the strongest light will not disturb him. During this period the higher nerve centers are rested to an extent that cannot be attained in any other way. Following this sleep is a gradual recovery of the powers of locomotion, speech, thought, etc., the progress

<sup>1</sup>*Centralbl. f. d. gesammte Therap.*, [XVIII], p. 89.

<sup>1</sup>*British Med. Jour.*, No. 2038, p. 134.



being daily visible, lasting about a fortnight—in all about twenty-one to twenty-four days. This fortnight is also a period of comparative rest, there being a gradual awakening of mental power and a passage from a disordered to an ordered state as regards that function.

Dr. Macleod has induced this sleep in nine cases, and so far as he could discover with benefit to all except one, who owing to a double pneumonia during a pneumonia epidemic died while under the bromide. Apart from this case he observed no interference of respiratory or circulatory function that could cause the slightest alarm. After recovery no interference with nervous function has occurred.

Early in 1897 Dr. Macleod had under his care a neurasthenic woman, addicted to the morphine habit for nine years. By accident she had administered to her  $2\frac{1}{2}$  oz. of sodium bromide in between two and three days, resulting in the bromide sleep described above, with the result that when she got over the effect of the bromide she had no craving for morphine, and had ceased to suffer from the various symptoms which had led to its use. Within a few months thereafter, a pilot, a morphine habitué also addicted to alcoholic excess, was sent to the doctor and expressed himself as willing to try the effect of the bromide sleep, the condition having been fully described to him, its risks being, so to speak, unknown. In this case no suffering was experienced during deprivation, and the morphine and alcoholic cravings had both disappeared on recovery from the sleep. A third time Dr. Macleod induced the sleep in a condition of acute mania to expedite the transport of the patient from the interior of Japan to Shanghai, without the use of constraint, and to get rid of the excitement associated with travel, in the hope also of benefit to the nervous condition, which hope was completely fulfilled. The fourth case was a Chinaman, a chloral habitué of two years' standing, who placed himself in the doctor's hands, with the result of loss of the craving for chloral without suffering during deprivation. In the fifth case, the bromide sleep succeeded in stopping uncontrollable vomiting in a neurasthenic woman, benefiting the neurasthenic condition from rest to nervous functions. Sixth, a morphine and cocaine maniac after the sleep lost the craving for both drugs, having escaped the suffering of deprivation, with great improvement to the general health brought to a low ebb by the drug habits. The seventh case, a woman, was relieved of a nine years' morphine habit, also without suffering from a deprivation spread-

ing over three days, with improvement to the general health. The eighth case, a doctor, addicted to morphine and cocaine, desired to be relieved of the drug habits without the suffering of deprivation of which he had had two previous experiences. This was the case that succumbed to an attack of contagious pneumonia. The bromide sleep was induced in the ninth case, one of acute mania, after an experience of forty-eight hours of incessant exaltation and excitement, with the certainty of obtaining absolute rest, sleep, and a cutting off of all surroundings more completely than is possible in the best regulated asylum and providing at the same time against the possibility of injury to self or others.

It will be conceded almost on every hand, the author concludes, that the production of artificial sleep hitherto by hypnotics leaves much to be desired in the presence of states like acute mania. In the bromide sleep there is the certainty of rest to both receptive and executive sides of the nervous system, and also of the region concerned with memory, a rest complete and prolonged, not to be obtained by other means as safely. If future experience goes to show that this bromide sleep can be induced without or with little danger, it ought to prove a powerful and effective means of dealing with all maladies of the nervous system in the treatment of which there is need for deep sleep and a profound and prolonged rest of the higher centers.

**Arsenic** in relation to its *toxicity* has been made the subject of investigation by M. Heymans<sup>1</sup>, who previously showed that toxins and cyanogen poisons, administered by intravenous injection in a dose large enough to be just fatal, disappear very rapidly from the blood and poison the organism irretrievably in the space of a few minutes.

Arsenic injected directly into the blood in suitable dose produces intoxication with latent stasis, fatal intoxication setting in only after several hours or even days. Chemical analysis determines the rapidity with which the poison disappears from the blood and what tissues receive it.

Besredka recently declared that he had immunized the rabbit against a fatal dose of arsenic, and that the animal serum thus immunized contained an anti-arsenine. It was important to have control experiments, and for this purpose the toxicity of arsenic for hypodermic, intravenous, and intracerebral injections should be known. Morisima has just obtained the following results, in the author's laboratory, from his investi-

<sup>1</sup>*La Sem. méd.*, 1900, No. 5, p. 41.

gations. After intracerebral injections arsenic shows itself 200 times more toxic than after injection by other ways—even by way of the carotid. Injection into the peripheral end of the carotid is scarcely more active than into the marginal and mesenteric veins. The passage of the arsenic through the liver scarcely diminishes its toxicity. Injection into the peripheral end of the crural artery determines gangrene of the limb; a part of the arsenic becoming fixed there, a larger dose is needed, and it acts more slowly than when injected hypodermically or into the vein.

If a fatal dose of arsenic is injected into the marginal vein of a rabbit, after the usual lapse of time the animal succumbs in spite of bleeding and transfusion, and a few seconds after the injection the blood contains only the least trace of the poison. The transfusion of this blood into a normal rabbit does not poison it. Arsenic, like the nitrites and the toxins, disappears very rapidly from the blood.

Morishima then divided the fatal dose into four portions and administered every three or four hours. He also gave  $\frac{1}{50}$  of the fatal dose twenty-four hours before administering the fatal dose. His researches from these two methods did not confirm the claim of immunity made by Besredka. They did not sensibly increase the resistance of the animals to arsenic.

Besides, animals given increasing small doses of arsenic for four months showed no greater appreciable tolerance of it.

**Guaiacol** has been used by Dr. William Nuss,<sup>1</sup> of Cleveland, Ohio, in treating painful cases of *orchitis* and *epididymitis*, with satisfactory results. The histories of three cases thus treated are given. The first was a man of thirty-five years, who eight months previously had a gonorrhea that took five months to cure. Five days before coming to the hospital a swelling appeared in the right groin, rapidly increasing in size until it was as large as the patient's wrist. The testicle was slightly involved, the temperature 103.4 F., pulse 106; troubled with headache, constipation, coated tongue, and loss of appetite. Strapping the testicle gave no relief. Antipyretics were administered and guaiacol was applied locally, to drops being used on the swelling morning and night for two days. On the third day the patient left the hospital entirely cured. The second case was a young man of twenty years, who had had gonorrhea five weeks previously, checking the attack in a few days with an injection. He had pain in the left groin, with

the epididymus enlarged and very tender. He was ordered to rest in bed and apply guaiacol night and morning. Two applications gave entire relief, and thinking himself well he left bed and quit treatment. On the fifth day the pain and swelling returned. Renewal of the treatment brought quick relief and a permanent cure. The third case was a man of fifty-three years. He had a chill, backache, headache, and nausea. Charged his symptoms to the taking of a cold while on a boat. Next day developed tenderness of the testicle with swelling and pain. One application of guaiacol gave immediate relief, and after three applications all pain and tenderness had gone, only a slight swelling remaining.

**Thyroid Extract**, according to experiments and extended clinical observations of Porges,<sup>1</sup> though often efficacious, is still not a suitable remedy for use in the treatment of *adiposity*. Dividing the patients affected in this way into two classes, he finds that a large number experience no improvement whatever under the thyroid treatment, while another set react quickly to the drug and apparently derive benefit from its use. In the case of the former, since the results are negative, evidently there is no object in resorting to organo-therapy. The second class, or those who are easily susceptible to the gland extract, consists mainly of individuals in whom some traces—distant, it is true—of a myxedematous tendency are demonstrable: very small or non-palpable thyroid, doughiness of the skin, and subcutaneous tissues, etc.

The advantages claimed for the method are that it effects positive results, and this without in any way restricting the patient's diet or his ordinary habits of life as regards exercise and occupation, matters often of great importance in private practice; but it is admitted that certain well-marked subjective disturbances—such as palpitation, restlessness, tremor, and insomnia—go hand-in-hand with the improvement and give the individual more or less discomfort. The greatest contra-indication is to be found in constant, greatly increased nitrogen excretion, an index of pathological albuminous breaking-down, and which, according to the author's researches, cannot be terminated by simply cutting off the drug, but continues for an indefinite length of time after its administration has stopped.

Contrasting the newer therapy with the old, we have in the one case, the author states, a substance undoubtedly of a toxic

<sup>1</sup>*Bulletin Cleveland Gen. Hosp.*, I, p. 25.

<sup>1</sup>*Prager med. Woch.*, xxv, No. 6.



nature, which in a large number of obese patients fails entirely of beneficial action, without, however, being free from unpleasant subjective effects, and which even where its action is most conspicuous does not achieve particularly noteworthy results; further, is always a possible source of by-effects which can not be controlled or their ultimate tendency foreseen. In sharp contrast stand the older methods, which, while effecting results equally satisfactory, are entirely free from immediate or remote danger to the patient.

**Cocaine**, used by Dr. Bleuler<sup>1</sup> (professor of the clinic on psychiatry in the Faculty of Medicine at Zurich) in cases of *zona*, not only relieved the pains inseparably associated with herpes, but also caused immediately a regression of the eruption, bringing about its complete disappearance in the course of a few days. He reports twenty-three cases thus cured. His method of using it was to paint the affected surface with equal parts of wool-fat and petrolatum rubbed up together with 1 per cent. of cocaine hydrochlorate, and to dress with linen spread with the same ointment.

**Largin** was employed in the treatment of eight cases of *blepharorrhea of the eyes* by Dr. Johan Almkvist,<sup>2</sup> assistant at Prof. Welander's Clinic of the St. Göran Hospital, Stockholm. The clinical histories, which the author gives, show that when the case comes under treatment at an advanced stage of the disease, a decided disturbance of the affected eye can not be prevented, but where the changes in the cornea have developed but very little, no noteworthy disturbance remained, and the treatment was in all respects satisfactory, the course of the disease being checked, and a cure effected.

Largin appears, hence, to be an excellent remedy for *blepharorrhea* if the latter is brought early under treatment. The further, however, the disease has progressed, the more difficult it appears to be to check it—perhaps because a new affection has taken place, which the corneal ulcer has invited, and for which largin is not so specifically effective; or perhaps because the gonococci have penetrated more deeply into the eye tissue, or for both reasons. It is, hence, very necessary that the treatment be begun very early.

In one case it was noted that but little improvement had been made for a long time, the treatment being carried out with a largin solution which had been standing for a

long time and become discolored; but when a fresh, colorless solution was used, an immediate and rapid improvement followed. It was assumed that the solution had decreased in silver strength on long standing, and hence was not as effective as it should have been, but when the freshly made solution was employed, the gonococcicidal power was immediately manifested.

It has been shown that persons having artificial eyes are more subject to the disease than others, because such an eye is more handled, perhaps, by infected hands than a natural eye is likely to be, and the infection is thus carried further. Hence, great caution must be enjoined in such cases as to strict antiseptic handling of the artificial eye.

**Atropine or Homatropine**, in determining the refraction of the eye so as to be able to correct defects of vision, was the subject of a paper by Dr. J. G. Grant,<sup>1</sup> of Akron, Ohio, read before the Celsus Club of that city.

The author said that by means of one or other of these therapeutic agents the exact amount of refraction can be ascertained and an accurate correction accomplished by an experienced ophthalmologist. As astigmatism always means eye-strain, the lens supplied should fully correct the defect in the curvature of the cornea, but unless the accommodation be relaxed the full correction cannot be determined. The lower the degree of astigmatism the harder it is to detect it, and where neither atropine nor homatropine have been used, the eye will often accept a lens that will not bring relief. If the degree of astigmatism be considerable, the eye often accepts a weak cylindrical lens, when with the accommodation relaxed a stronger cylindrical alone would be accepted and give relief. In hyperopia of low degree, owing to spasm of accommodation the eye will frequently accept a minus or near-sighted glass—a mistake that could not occur if the ciliary muscle had been relaxed before the examination. In far-sightedness of high degree it is mere guessing to prescribe lenses before the full correction is known. In myopia, while it is not usually as necessary to use mydriatics in some cases, they must be used in order to avoid overcorrection.

The chief objection to the use of atropine is that it requires three or more days to prepare the eye for examination, and during this time and for several days subsequent thereto no near work can be done. This time can be shortened by using eserine in the eye daily, but even then several days are

<sup>1</sup>*Nouveaux Remèdes*, 1900, No. 1, p. 21.

<sup>2</sup>*Archiv. f. Dermat. u. Syph.*, L, No. 2.

<sup>1</sup>*Columbus Med. Jour.*, XXIV, p. 5.



lost for near work. Except in the case of children and certain cases of unusually severe eye-strain, homatropine is very much preferable, as the eye is in a condition to do near work within twenty-four to thirty-six hours after the examination. If used sufficiently strong, the eye can be prepared for examination at the end of an hour, and if before leaving the operator's office, and again in the morning, a drop of eserine solution is put into the eye, the pupil, in the majority of cases, will have been restored to normal size at the end of twenty-four hours. By relaxing the accommodation through the aid of homatropine, the refraction of the eye in children and neurotics can be determined without asking any questions by merely noting the movement of the shadow caused by reflecting light into the eye by means of a mirror, as in retinoscopy.

At the close of his paper, the author called attention to the danger attached to permitting jewelers and opticians, who know nothing of the structure or functions of the various parts of the eye or of the proper use of mydriatics, to attempt to correct defects of vision, especially in the young or in adults with diseased eyes.

**Sodium Benzoate and Benzoic Acid** have lately been the subject of experimental investigation at the Laboratory of Pharmacodynamics, University of Pennsylvania, by Dr. W. W. Ashhurst,<sup>1</sup> of Chihuahua, Mexico. The investigator having clinically observed the effects of administering benzoic acid and oil of sandalwood to patients with gouty cystitis, and other acute catarrhal conditions of the genito-urinary tract, concluded that, contrary to the usual notions, benzoic acid seemed to have little or no influence on the amount of acidity of urine already acid, while it did change alkaline into acid urine. It seemed to him that possibly the benzoic acid must act as an antiseptic, checking ammoniacal fermentation and not as an acid increasing acidity by its mere presence. In order to settle the matter, he concluded to put it to the test of experiment. The urine of two dogs was carefully tested for some days to determine the average normal acidity. Afterwards each dog received 1 Gm. of sodium benzoate hypodermically for several days, and the urine was again subjected to the same examination. Finally, 2 Gm. of the benzoate was given. The acidity was determined volumetrically with aqueous solution of potassium hydrate, phenolphthalein being used as indicator. In an average taken from seven observations on dog No. 1 and six observa-

tions on dog No. 2, the specific gravity of the urine when benzoate was not being given was 1.0507 and 1.0496 respectively, the quantity passed 116 Cc. and 157 Cc., and the acidity 0.51 and 0.61 Cc. of a 1-per cent. solution of potassium hydrate to 1 Cc. of the urine. The averages when 1 Gm. of sodium benzoate per day was given (for seven days with No. 1 and eight days with No. 2) stood at 1.045 and 1.058 for specific gravity, 131.5 Cc., and 105 Cc. for amount, and 0.33 and 0.71 for acidity. When each dog used 2 Gm. of sodium benzoate per day, the averages were, on seven days' use, 1.049 and 1.048 sp. gr., 135 Cc. and 167 Cc. quantity, and 0.37 and 0.52 acidity.

The urine of the first and smaller dog was increased in quantity proportionally to the size of the dose given, and the acidity slightly diminished. The second dog had an increase in quantity of urine and diminution of acidity from the high dose, but diminution in quantity and slight increase of acidity from the low dose. This indicates that an increase in amount of urine brings slight decrease in the acidity, but the diuretic effect is slight and inconstant. The author concludes, as a result of his experiments, that the only influence the drug had upon the acidity depended upon its effects upon the relative dilution or concentration of the urine, the acidity being proportionally less as the dilution is greater. This, he says, only holds for general average, as the normal variations from day to day are considerable, and do not depend entirely upon the relative concentration, but rather upon the amount of sodium acid phosphate present.

In order to corroborate these results, he tested the matter upon himself by collecting his urine for several days, noting the quantity, specific gravity, and acidity. He then took 6 Gm. per day of sodium benzoate for several days and made similar observations.

During ten days' observation, without taking the drug, the averages were:

Quantity .....	713 Cc.
Specific gravity .....	1.0248
Acidity .....	0.36

Six days' observation, taking 6 Gm. of sodium benzoate daily, averages:

Quantity .....	822 Cc.
Specific gravity .....	1.0253
Acidity .....	0.315

In this case the quantity was somewhat increased, the specific gravity scarcely altered and the acidity slightly diminished.

In the dogs' and his own urine he found that sodium benzoate, when taken indefinitely, postponed alkaline fermentation. When exposed to the air of the laboratory

<sup>1</sup>*Phil. Med. Jour.*, v, p. 457.

for several days not more than a mere trace of ammonia was found, and this occurs in freshly voided urine. A sample from the smaller dog was tested at first daily, and then at longer intervals for two months, and it was found to get more and more acid as the urine became more concentrated from evaporation. The author adds that we thus have the well-known effect of benzoic acid upon ammoniacal cystitis explained. It is not that the acidity is directly increased, but that the ammoniacal fermentation going on in the residual urine is prevented from taking place, and the urine resumes its normal acidity.

From the notably beneficial effects obtained in many cases of cystitis, even where there is no residual urine and no ammoniacal fermentation taking place within the bladder, it would seem that the benzoic acid or some of its eliminative products had a distinct antiseptic or germicidal action. That this influence does not affect all forms of bacteria, however, is indisputable. In the sample above referred to, which was kept for two months without becoming at any time alkaline, as well as in others, bacteria were observed which grew and flourished. The apparent number of bacteria, however, was notably less while the benzoate was being exhibited than under the normal condition.

In connecting these researches and their results with the therapeutic use of benzoic acid or sodium benzoate it is pointed out that in ammoniacal cystitis there may be so large an amount of residual urine in the bladder that it will be too much for the drug to render acid, and therefore it would be well always to empty the bladder completely at sufficiently short intervals. In this way the acid will have a fair opportunity to cope with the myriads of bacteria that have become entrenched in so favorable a site and medium, and which no ordinary amount of normal urine could succeed in keeping acid long enough to overcome.

**Berberine Hydrochlorate** has been investigated recently by Typaldo Lascarato,<sup>1</sup> with the result that the drug is proved to be exceedingly valuable in enlargement of the spleen due to malaria. The action of the berberine consists in causing a contraction of the spleen, and this must be watched, because two large doses of the alkaloid may cause a laceration of the organ, which almost always causes a fatal hemorrhage. The contraction of the spleen effects the expulsion of its contents, hence there is frequently observed immediately after the exhibition of

berberine a severe febrile attack, probably due to the ejection of the malaria parasites into the blood-circuit. For the further development of the disease this phenomenon is of value, in so far as careful watching enables effective action to be taken against the parasites on their appearance. This is to be obtained by means of quinine, which has been found to act with great energy on the parasites that have found their way into the blood. Should splenic degeneration have taken place, however, medication will, of course, be ineffective.

The author recommends the remedy to be given in the following form:

Berberine Hydrochlorate. 1 Gm. (16 grn.)

Quinine Bisulphate. . . . . 0.5 Gm. (8 grn.)

Divide into 4 powders.

Dose: One powder, in wafer, every half hour or hour.

**Phosphorus** for *convulsions* of infants (when recurring after the proper initial treatment has been carried out by evacuation of the gastro-intestinal tube to remove toxins) is recommended by Dr. J. Lange,<sup>1</sup> privat-docent on pediatrics at Leipzig, in place of administering bromide and chloral as formerly done. He states that phosphorus exercises a calming effect much more efficacious than that of bromides in these attacks of convulsions. He administers it in oil solution, in the doses usually employed for rickets, and continues its use for two or three days.

**Dionin** has been investigated therapeutically by Dr. Meltzer,<sup>2</sup> of the Imperial Sanatorium at Colditz i. S. The author administered the remedy in a number of mild or moderate cases of *dementia*, mostly secondary, occurring in women, doses of 0.03 Gm. ( $\frac{1}{2}$  grn.) being given dissolved in a tablespoonful of water. These doses were usually taken without objection, in spite of the moderately bitter taste, which, however, very soon disappeared. Nor was the dionin rejected by the stomach, as is often the case with paraldehyde and amylene hydrate. Amelioration usually set in from fifteen to thirty minutes after administration. The patients were less influenced by their hallucinations, stopped picking at their clothes, beds, hair, etc.: no longer attempted by main force to leave their beds, and ceased to exhibit faces indicative of their psychical condition. The author never observed any unpleasant by-effects such as frequently follow the administration of hvoscine in cases of high excitement. On the contrary, in

<sup>1</sup>*La Sem. méd.*, 1900, No. 7, p. 26.

<sup>2</sup>*Münch. med. Woch.*, XLVI, p. 1731.



these cases the patients were beneficially influenced.

The hypnotic effects of dionin were tried in a large number of cases, with the result that, including those cases in which dionin was contra-indicated because of the highly excited conditions, success was attained in 81 per cent. of the cases treated—about as much as is afforded by morphine. The author does not consider dionin a true hypnotic, but as a remedy which, like morphine, to which it is allied, lessens the sensitiveness of the mind to impressions, and thus induces sleep. In the conditions of excitement in melancholia, it, like morphine, ameliorates the physical pain and psychical symptoms, hence indirectly affords rest and sleep. Similar effects are observed in those possessed of hallucinations, as the latter are more or less dispelled under the influence of the dionin and the tired brain, which had been active in spite of itself, and is enabled to obtain the much needed rest. The sensations of sadness and pain, however, which still persist under the hallucinations, prevent to a certain extent the feelings of security and comfort which are necessary for inducing normal sleep.

Unpleasant by-effects, such as are daily observed with morphine, were noted only in three cases—in one, a very sensitive and anemic subject, it caused dizziness and transitory heart-beat; in the others, one an epileptic and the other a melancholic, both highly excited, dionin appeared to augment the excitement. The author believes, however, that in these two cases the ill results were probably due to the form of administration, which still more irritated the excited patients. It is advised, nevertheless, not to administer dionin to very sensitive or highly excited patients, even in cases where exhaustion exists because of the extended period or intensity of the condition. These contra-indications do not, of course, in any way affect the therapeutic value of the dionin, because our best hypnotics and sedatives fail us completely at times on similar grounds, and even moderate and small doses may renew certain previously existing nervous conditions.

The reputed sedative action led the author also to employ dionin in 20 cases, with the result that in only 2 was there a non-success, whereas in the 18 there was a rapid relief or alleviation.

To sum up, the author states that the sedative action of dionin is milder than that of morphine, and is stronger and more sustained than that of codeine, while possessing none of the disagreeable by-effects of these. Therapeutically it may be successfully em-

ployed in relieving cough in the various affections of the respiratory organs, and for relieving pain. It may also be employed locally in various eye-diseases for increasing the secretion of lymph. An excellent influence is exerted in cases of depression and excitement of a mild and medium character, in enabling the patients to obtain sleep. Physiologically considered, it does not influence respiration and expectoration like morphine, but it may be given in respiratory dyspnea in which morphine is contra-indicated.

Finally, dionin may be given for long periods, because it does not produce the sensation of euphoria which morphine does, and it is rapidly eliminated. On these grounds, and also because its ready solubility facilitates its hypodermic employment, dionin is destined to play a very important part in the cure of the morphine habit.

**Gastralgia** in anemic subjects, especially women, having gastric trouble with vomiting and painful crises, related or not to ulcer of the stomach (provided there is no hematemesis or melena), is treated by Dr. Laundby,<sup>1</sup> of Mason College, Birmingham, in the following manner: The patient, in bed, receives for sole nourishment 1 fl. oz. of a mixture, in equal parts, of milk and lime water every hour, the quantity to be gradually increased to 4 fl. oz. every hour as the symptoms disappear. At the same time, two tablespoonfuls of the following mixture are given three times a day:

Magnesium Sulphate.....	6 dr.
Iron Sulphate.....	15 grn.
Diluted Sulphuric Acid.....	2½ fl. dr.
Peppermint Water.....	8 fl. oz.

The rapid improvement under this régime soon permits the use of a small quantity of bread and scraped meat, then solid foods, and finally recovery ensues.

In hematemesis or melena, rigid treatment is instituted for ulcer by first resorting to rectal feeding; but this condition is regarded by the author as rare in the gastralgias of anemic subjects.

**Eumenol** has been investigated by Dr. De Buck,<sup>2</sup> who confirms the statements made by Mueller, the introducer of the preparation, as to its effectiveness in favorably influencing *catamenial functions*. According to the writer, the remedy possesses a characteristic regulatory action on the abnormal local and general reactions that accompany menstrual processes. The best re-

<sup>1</sup>*La Sem. méd.*, 1900, No. 4, p. 34.

<sup>2</sup>*E. Merck's Bericht*, 1900.



sults are obtained with eumenol in purely nervous forms of the disease, in which no gynecological lesions can be observed. In such cases a complete cure of the dysmenorrhoeic symptoms may even be expected.

In other cases of organic affections the action of eumenol is perhaps more recognizable, but yet must be considered as being only purely palliative. The eumenol is given in teaspoonful doses thrice daily. Larger doses should not be generally employed, because in sensitive patients they may cause headache.

**Validol** has been used in the dyspeptic vomiting of phthisis, with very good results, by Dr. Cipriani.<sup>1</sup> He finds that in doses of 15 to 20 drops, given on a lump of sugar, validol is an excellent stomachic, as it quickly restores the appetite. It is also recommended as an expectorant in affections of the upper air-passages. Good and rapid results are also obtained by the application of the remedy with a brush in the treatment of pharyngeal affections.

**Exophthalmic Goiter** has been treated by Dr. O. Lanz,<sup>2</sup> of Berne, with the serum of animals deprived of the thyroid body, "containing consequently toxic substances capable of neutralizing the thyroidal hypersecretion." Nevertheless, instead of employing for this purpose, as did Ballet and Enriquerz,<sup>3</sup> injections of the serum of dogs deprived of the thyroid gland, he prescribed to his three patients the use of milk from goats deprived of their thyroid gland. The patients took daily from  $\frac{1}{4}$  to  $\frac{1}{2}$  liter of such milk ( $\frac{1}{2}$  to 1 pint). The effect was very favorable. At the end of a few weeks in two cases the pulse became much less frequent, the goiter, trembling, and headache diminished, and sleep and appetite improved. The third case was under treatment only eight days, yet the exophthalmos and the headaches were improved.

**Variola** and its treatment by the external application of *antiseptics* is the subject of a recent editorial in a contemporary.<sup>4</sup> The editor refers to the experience of R. H. L. Bibb, in the use of frequent spongings of the body with hot solutions of corrosive sublimate, 1:1000 and stronger, as first suggested by T. C. Osborn. The treatment of fifty-five cases in this way at the American Hospital, in the City of Mexico, resulted in

only two deaths, and both of these were subjects of prior chronic diseases. The treatment, it is claimed, prevents itching, odors, pustulation, abscesses, and pitting, as well as lessens greatly the mortality.

The experience of Alonzo Bryan, who first washed the site of the eruptions with soap and water, disinfected with a 1:500 solution of corrosive sublimate in alcohol, and then sponged the parts with hydrogen dioxide, finally wrapping them in borated cotton, is also cited. The vesicles thus treated dried into scales without suppurating, and there was no pitting. Some vesicles that were not thus treated on the same patient ran the usual course.

F. S. Purman's plan is given. He treated two cases by scrubbing the region of the vesicles with soap and water, followed by a solution of hydrogen dioxide. The vesicles were then opened, touched with pure carbolic acid, washed with hydrogen dioxide, oiled to relieve the smarting, and covered with cloth rung out of carbolized water.

Moir's plan is next referred to. He oils the skin early in the disease and believes that he has in this way lessened the amount of pitting.

The comparative results of Purman's and Moir's systems with those of Bryan and Osborn are not given.

The editor says, in conclusion, that the external antiseptic treatment of smallpox certainly presents a fascinating field from a theoretical standpoint. A surgical axiom is that we should remove pus wherever found. Perhaps this seems imperative when dealing with a large abscess, but the pustules of smallpox, while small, in the aggregate contain a considerable amount of pus. The danger to the patient is in the amount of surface involved. It seems reasonable that the opening of these abscesses, evacuation of the pus, and the sterilizing of the surface, are important procedures. Of necessity it must lessen the absorption of infection and decrease the inflammatory reaction in the skin.

The best method of accomplishing this has not yet been determined, he continues. It would seem that the mercury bichloride, which has been most used in these experiments upon smallpox vesicles, has some distinct disadvantages. It lacks penetrating power, due to the fact that it coagulates albumin. This is obviated in some of the other salts of mercury, notably the last addition, mercuriol, in which the mineral has been combined with nuclein. Several new antiseptics have been added to the list, such as formaldehyde, which may be of value. The discovery of Phelps that alcohol antidotes carbolic acid is one that may have an appli-

<sup>1</sup>Centralbl. f. d. gesammte Therap., XVIII, p. 121.

<sup>2</sup>La Sem. méd., 1899, No. 52, p. 416.

<sup>3</sup>La Sem. méd., 1895, p. 329.

<sup>4</sup>Medicine, VI, p. 38.

cation, as it would easily admit of the use of pure carbolic acid applied to the interior of each vesicle, providing they were afterward scrubbed out with alcohol. This would prevent excessive absorption of carbolic acid, and at the same time efficiently disinfect these small pus pockets. There is no reason why the pustules should not be treated surgically, the editor concludes; it can certainly do no harm, and there is some evidence that goes to show that it may be of considerable value.

**Eczema of the Ear** is treated by Lermogez<sup>1</sup> in its two forms—acute (moist) and chronic (dry)—as follows: The weeping of the acute form is first treated by dusting the surfaces of the auricle with an inert powder, 3 parts of talc to 1 of zinc oxide. No douches. When crusts form, olive oil or petrolatum is spread over them to soften them and to facilitate their removal by light rubbing with cotton. The whole surface is then dressed with linen covered by the following ointment, this again by cotton and bandage:

Petrolatum.....	} of each, 2½ dr.
Wool-fat .....	
Zinc Oxide .....	1 dr.

Cotton saturated with the same is put into the external auditory canal. When crusts cease forming, Lassar's paste is applied, which is as follows:

Petrolatum .....	5 dr.
Starch .....	} of each, 2½ dr.
Zinc Oxide .....	
Salicylic Acid.....	8 grn.

This failing, one of the following—calomel, 1 to 20; yellow oxide of mercury, 1 to 20; oil of cade, 1 to 10; ichthyol, 1 to 10 in petrolatum for the auricle, in olive oil for the auditory canal; applied twice a day by the patient.

This failing, silver nitrate solution, 1 to 40, on cotton, is left applied two days. If then the canal is dry, zinc oxide ointment is used; if moist, the silver nitrate is continued. If this fail, the silver nitrate is used, 1 to 10. The auricle is covered first with petrolatum. Then the canal is filled with the warm silver nitrate 1 to 10, for three minutes. Warm salt solution is then injected, the canal dried and cotton impregnated with zinc oxide ointment left in.

The dry eczema of the canal is lightly painted three times a day with mentholated olive oil, 1 to 40; oil of cade in olive oil, 1 to 10, or salicylated olive oil, 1 to 200.

If epidermal débris obstructs the canal, fill the canal three times a day with 1 to 100

of sodium carbonate in glycerin and syringe out with warm water. Then treat as for subacute eczema, as given above.

In intense form of eczema of the auricles, they are first washed with an alcoholic solution of soft potassa soap, and then treated with mild zinc oxide ointment, or with ichthyol ointment, 1 to 10. The treatment is repeated every three or four days.

The seborrheic forms will be better treated by means of sulphur ointments. General conditions—gout, rheumatism, scrofula, etc.—must have appropriate treatment. In the chronic forms arsenic may be given, thus:

Sodium Arsenate .....	1½ grn.
Cherry-laurel Water .....	1½ fl. oz.
Distilled Water.....	6½ fl. oz.

One to four teaspoonfuls a day, with meals.

**Skin-diseases** of various types are treated medically at the Post-Graduate Clinic of New York, by Dr. Lusk,<sup>1</sup> along the following lines: Acne, with the usual papules, indurated pustules, and blackheads, is controlled by regulating the diet, correcting and relieving stomach and bowel disorders, and applying externally antiseptics and peeling lotions so as to bring about desquamation and allow the blackheads to be easily expressed. The most frequently used remedy for this purpose is the compound white lotion which consists of:

Zinc Sulphate.....	} of each, 1 to 2 dr.
Potassium Sulphide..	
Precipitated Sulphur }	
Water.....	to make 4 fl. oz.

The milder strength is used first, and increased until sufficient peeling of the epidermis has occurred.

Vlemminckx's solution, 1 part to 4 of water, gradually increasing the strength of the solution, is also deemed an excellent application. Where comedones predominate, 10 per cent. resorcin ointment gives far better results. It is not a very hard matter to remove lesions on the face, and the principal difficulty of acne cases is to prevent their further outbreak. Dietary restrictions are absolutely necessary for a good result.

Impetigo contagiosa, associated with pediculi capitis, having lesions composed of crusted patches from the size of a pea to a half-dollar, is in the majority of instances found in children having head lice. The impetigo starts from infection carried to the head during scratching. It is due to the staphylococcus albus and aureus, and sometimes there is an association with streptococci. The head should be soaked in

<sup>1</sup>Rev. de Thérap. méd.-chir., 1900, No. 3, p. 92.

<sup>1</sup>Post-Graduate, XV, p. 79.

equal parts of kerosene and linseed oil night and morning for two days and nights, and washed with soap and warm water. The hair should be combed with a fine tooth comb soaked in vinegar. Another application is:

Fld. Ext. Delphinium..... 2 to 4 fl. dr.  
Diluted Acetic Acid ..... 6 fl. oz.

Tincture of delphinium and ether, in equal parts, forms an effective remedy. To the impetigo on the chin, cheeks, and forehead, ammoniated mercurial ointment of 3 to 10 per cent. strength should be applied. Lassar's paste is an excellent base in these cases. Sulphur and other antiseptics are useful.

Psoriasis, with characteristic infiltrated patches, and superimposed layers of white silvery scales, which when removed show small bleeding points, appears on the arms, while the back and buttocks may be a solid infiltrated patch sharply outlined. Where the abdomen of a fat patient rubs against the thigh, large patches may appear. The disease has a predilection for elbows and knees. Where there is much infiltration arsenic should not be used, but sodium salicylate and alkaline diuretics.

In chronic cases, where there is little or no infiltration, arsenic may be used in the form of the Asiatic pill which consists of 1½ grn. of arsenous acid, and 1 grn. of black pepper. In the external treatment chrysarobin is by far the best local application in 5 to 10 per cent. ointment, or in the form of Unna's compound chrysarobin ointment:

Chrysarobin..... 5 parts  
Ichthyol..... 3 parts  
Salicylic Acid..... 2 parts  
Petrolatum..... 90 parts

Ammoniated mercurial ointment alone would be used for lesion on the face and scalp, because chrysarobin causes a dermatitis on the head and face, as well as a violent conjunctivitis. In the chronic diffused variety, the following may be used:

Salicylic Acid..... 1 dr.  
Tar Ointment..... 1 of each, 1 oz.  
Zinc Ointment..... 1 of each, 1 oz.

It is exceedingly important that the patients take daily prolonged alkaline baths, containing ½ lb. of sodium bicarbonate and ½ lb. of starch to the ordinary amount of warm water. They should remain in the bath for half an hour, scrubbing to remove the scales. After drying, the external treatment is to be applied.

In tinea favosa the greater part of the scalp may be covered with a number of cup-shaped cavities filled with a yellowish putty-like mass, having the odor of rats. The dis-

ease is due to *Achorion schoenleini*, and is found mostly in immigrants, especially from Russia and Italy. It is very chronic, and leaves permanent scars. The treatment consists of removing the crusts by the use of soap and water or a solution of

Boric Acid..... 1 dr.  
Satin Gloss Starch..... 2 oz.

made into a paste with cold water, and then adding 1 pint of boiling water. Apply about ½ inch thick as a poultice, changing every few hours until crusts are loosened and removed, when active treatment can be instituted. The choice will probably be mercury oleate, 5 to 20 per cent., copper oleate of the same strength, ammoniated mercurial ointment of 10 to 20 per cent., or pyrogallic acid of 5 to 10 per cent. Carbolic acid and tincture of iodine have also been used with success. Treatment should be persisted in for months and even years after the disease is apparently cured.

In scabies, burrows are to be looked for between the fingers, on the penis, and on the nipples. The diagnosis is made from the character and distribution of the lesions. They are found on the hands, wrists, forearms, abdomen, axillæ, breasts, buttocks, genitals, and legs. The history of contagion is usually obtainable. Treat with a warm alkaline bath at night, followed by thorough rubbing in of sulphur ointment or with an addition to the ointment of 5 per cent. of beta-naphthol. Three or four thorough rubbings will usually be enough. Sometimes a sulphur dermatitis is established that continues the itching after the disease is cured. In children with infection of the hands and feet, 15 to 25 per cent. of balsam of Peru in olive oil is excellent.

**Ichthyol** is efficacious in *burns* of the first and second degrees. It allays the pain at once, and slight superficial burns heal rapidly. It is used dry, diluted with zinc oxide or bismuth (the powder being spread evenly over the surface), in the form of paste, or as a combination of both methods. The zinc-oxide powder may be combined as follows:

Zinc Oxide..... 5 oz.  
Magnesium Carbonate..... 2 oz.  
Ichthyol..... 2 fl. dr.

Below is the composition of the paste:

Calcium Carbonate..... 1 oz.  
Zinc Oxide..... 4 dr.  
Olive Oil ..... 1 fl. oz.  
Lime Water..... 1 fl. oz.  
Ichthyol..... 1 fl. dr.

—*Monatsh. f. prak. Dermat.*



# The Prescription

We wish to have our readers use this department with the utmost freedom. Any question about the prescription or about any substance used in prescriptions comes within its range. We shall do our best to find correct answers for all, and if we fail for lack of information at hand, some one of our readers may be able to give the right reply. On questions of therapeutics or practice we shall not attempt to give any opinions of our own, but find for the questioner what the best available authorities on such subjects have to say upon them. Let every reader resolve his doubts about compatibilities, doses, latest remedies, best methods of administration, dangers of remedies, etc. Send in favorite prescriptions and let others be benefited by what you have discovered. We shall give full credit for all such information. As some persons do not care to have their names appear as the authors of queries, we will refrain from giving names in this connection when requested to do so. Sometimes it is an advantage to have the writer's name published, and in such cases we hope that over diffidence will not interfere with the right.

H. M. O., of Kansas, writes: "In the January ARCHIVES, 1899, page 32, I find 'Potassium is poisonous in large doses, while strontium is not. . . . He has given 3 dr. (of the bromide) daily for several weeks, without ill results.' In the December number, 1899, page 518, I find strontium bromide recommended in dram doses four times a day. I followed these instructions in a case of epilepsy in a young man, and in less than a week he developed the worst case of stomatitis I ever saw. The mucous membranes of the mouth, throat, and eyes were violently inflamed. He could scarcely see; had some elevation of temperature; wanted to eat, but could not. The effects were slow in abating, notwithstanding the drug was discontinued at once. He had never been treated by a physician before, but had recognized his own difficulty and for some time he had been taking potassium bromide on his own responsibility. I advised him to discontinue the potassium bromide, but I did not put him on the strontium bromide for several days, but on borax until he had eliminated the potassium bromide, but the results were as stated. Now, is the dose recommended too large, or could the patient have secretly continued the potassium bromide, thus causing the severe symptoms of bromidism which followed?"

This exceedingly interesting communication of Dr. O. we give in full, because of its great importance in a number of respects. It is evident from what he says that his patient was suffering from (a) some merely coincident affection; (b) from what we in our ignorance of a better name call an idiosyncrasy; (c) from a prior mercurialism, the latent force of which the bromides somehow released; (d) or from the invasion of some pathogenic micro-organism that found the strontium-charged saliva a fitting field for thrifty development. The symptoms given are not those common to bromism, neither can we discover any similar cases reported as following the use of strontium salts of any kind. The case is distinctly unique so far as we are able to discover.

Mild cases similar to the one described frequently follow the use of iodides, and particularly potassium iodide in patients who had at a former time taken mercurials. If, by some mistake, an iodide was substituted for the bromide it might be explained in this way.

Referring to Dr. O.'s question concerning the dose he gave, we can only state that such doses are commonly given by specialists in treating cases of epilepsy. It is always well, however, for the general practitioner to begin treatment in every instance with medium doses and carefully work his way up to the larger amounts. This rule is a good one to follow in every disease and with every drug. Climate, character of food, habits of life, assimilative power, eliminative power, and a multitude of other factors may at any time make the most approved doses unsuitable to what might appear to be the same kind of a case. Readers of the ARCHIVES should always follow this rule when trying any remedy recommended in our abstracts or original papers. The larger doses used by the writer should be taken as a guide to the size of dose they can with considerable assurance work up to with a fair degree of speed and beyond which they must feel their way very slowly. If Dr. O.'s patient had continued using potassium bromide while he was giving strontium bromide, the result that should have occurred would have been that of the "bromide sleep," described in an abstract in this number of the ARCHIVES, p. 110.

Dr. T. Docking, of San Diego, Cal., in a late communication, states that he has had signal success in the treatment of a case of *indigestion* in an old gentleman of seventy-four years by the use of orexoids (4-grn. tablets orexine tannate, Merck). The old gentleman was evidently a very hearty eater, if we may judge from his usual menu, which is stated to have contained mutton chops, pork sausage, butter, eggs, olives, green peas, turnips, carrots, cauliflower, spinach, lettuce, celery, crackers, custard,

milk, coffee, tea, and but little bread. Having suffered from seven nights of sleeplessness and two nights of severe retching, with sour stomach and vomiting, the doctor was called and put him on *nux vomica*, with change of diet, but as night came on nausea and acid eructations again occurred, threatening another restless night. The doctor at once administered one 4-grn. tablet of orexine tartrate, which quieted the patient, and within an hour he was fast asleep. The doctor says that he was astonished at the promptness of the result. Some days later there was a recurrence of the symptoms, but with less severity, and a single orexoid cured him. Two doses only were given, and there has been no return of his trouble. The doctor concludes by saying, concerning results, "Comment is hardly necessary. I am satisfied that the remedy suited the case."

**Dr. R. W. Bemis**, of Philadelphia, Pa., writes that he is pleased with the results he has had in using thiocol (potassium guaia-col-sulphonate, Roche) and dionin (ethyl-morphine hydrochlorate, Merck). He says: "Thiocol, in 10-grn. doses three times a day, lessened expectoration and made the cough less troublesome. Dionin, in 4-grn. doses, caused too much drowsiness, and so gave it in 1-grn. doses, with satisfactory results. Cough very much lessened."

**S. H.**, of Virginia, referring to the editorial on "Carbolic Acid and Its Antidotes," which appeared in our December, 1899, issue, calls attention to a paper of his in which he shows that magnesium sulphate and cream are excellent antidotes. He says: "If the ingestion of the acid be followed immediately or very soon by magnesium sulphate in solution, and then with cream, or vice versa—or either alone, should one not be at hand or obtainable—you may rest assured that you will not lose that patient or have him in bed longer than twenty-four to thirty-six hours, if that long. With magnesium sulphate or cream in almost every house in the land and their antidotal properties generally known, death from carbolic-acid poisoning should become a thing of the past."

We hope that Dr. H.'s confidence in these articles as unfailing antidotes will prove to be well placed. In the editorial referred to the place of the soluble sulphates, of which magnesium sulphate is one, is given as determined experimentally. It is only as an eliminant from the blood that its value is felt, but that is too late to help the patient when the caustic action of the acid is proceeding. Let Dr. H. mix magnesium sulphate and strong carbolic acid and apply to

his hands, or put a little of the mixture in his mouth, and then we will be glad to get a report from him of the result. Magnesium sulphate should certainly be used in carbolic-acid poisoning, but its object is not to overcome the caustic action of the acid, but to overcome its toxic action when absorbed. Regarding the use of the cream, we can but commend this also. The doctor is right in wanting the profession to know of its value. The caustic action of carbolic acid is certainly markedly reduced by admixture with cream. The fat globules act as a protection and the casein present is also to some extent antidotal. In country places both the remedies he names are generally found in the majority of houses, but in large cities this is not so often the case.

Following is a selection of prescriptions that have been recommended for use in diseases of the kidneys and bladder:

#### Bright's Disease:

Copaiba Resin.....	10 grn.
Diluted Alcohol.....	15 min.
Spirit Chloroform.....	10 min.
Syrup Ginger.....	40 min.
Mucilage Acacia.....	80 min.
Water.....	to make 1 fl. oz.

Tablespoonful, or the whole at a dose.

—*Med. Record.*

Mercuric Chloride.....	1 grn.
Potassium Iodide.....	1 dr.
Syrup.....	1 fl. oz.
Infusion Gentian.....	5 fl. oz.

Give 3 teaspoonfuls daily, to relieve renal congestion and bring about the gradual disappearance of the albuminuria and other nephritic symptoms.

—BLACK, *Amer. Medico-Surg. Bulletin.*

#### Nephritis in Children:

Solution Ammonium Acetate....	1 fl. oz.
Tinct. Digitalis.....	} of each, 80 min.
Spirit Chloroform.....	
Distilled Water ..	to make 8 fl. oz.

Tablespoonful three times a day to children from 6 to 10 years old.

—ASHBY, *Med. Record.*

#### Nephritis:

Pilocarpine Nitrate ..	3/4 to 1 1/2 grn.
Vaselin. ...	3 oz.

Apply to the dorso-lumbar region every morning.

—JULIA, *Med. Record.*

#### Chronic Nephritis:

Lithium Benzoate.....	150 grn.
Betol.....	80 grn.
Sodium Bicarbonate.....	1 dr.

Make into 20 powders and give one two or three times a day. —*Gaillard's Med. Jour.*

**Irritable Bladder:**

Benzoic Acid.....	} of each, 4 dr.
Borax .....	
Alcohol.....	4 fl. dr.
Tinct. Hyoscyamus.....	2 fl. dr.
Syrup Wild Cherry.....	2 fl. oz.
Elixir Orange Peel .....	12 fl. dr.
Distilled Water.....	to make 6 fl. oz.

A dessertspoonful every four hours, followed by a glass of water. —TODD, *Therap. Digest*.

**Irritable Bladder after Confinement:**

Salol .....	2 dr.
Tinct. Hyoscyamus.....	2 fl. dr.
Infusion Buchu.....	to make 6 fl. oz.

Shake and give a tablespoonful three times a day. —FOTHERGILL, *Times and Register*.

**Chronic Bladder Affections:**

Ext. Uva Ursi.....	6 dr.
Tinct. Hyoscyamus.....	4 fl. dr.
Paregoric.....	12 fl. dr.
Solut. Potassa.....	2 fl. dr.
Tinct. Lupulin.....	3 fl. dr.
Simple Syrup.....	4 fl. dr.
Peppermint Water.....	to make 6 fl. oz.

Dessertspoonful twice a day in water. If the urine is alkaline, boric acid should be substituted for the solution of potassa.

—HEARN, *Dunglison's Col. and Clin. Rec.*

**Diuretic, with Iron:**

Tinct. Iron .....	4 fl. dr.
Potassium Acetate.....	4 fl. dr.
Simple Syrup .....	} of each, 2 fl. oz.
Water .....	

Two or three teaspoonfuls four times a day.

—ALBRIGHT, *Med. Summary*.

**Gouty Nephritis:**

Colchicine.....	¼ grn.
Quinine Sulphate.....	} of each, 15 grn.
Ext. Colocynth.....	

Make into 15 pills and give one three times a day.

—PHILLIPS, *Med. News*.

**Acute Cystitis:**

Fld. Ext. Buchu.....	1 fl. oz.
Potassium Citrate.....	3 dr.
Sweet Spirit Niter.....	4 fl. dr.
Syrup Lemon .....	to make 3 fl. oz.

Teaspoonful every three hours in water.

—Canada *Lancet*.

Fld. Ext. Belladonna Leaves....	20 drops.
Borax .....	2 dr.
Benzoic Acid.....	20 grn.
Paregoric.....	12 fl. dr.
Oil Wintergreen.....	12 drops.
Simple Syrup.....	2 fl. oz.
Distilled Water.....	4 fl. oz.

A dessertspoonful in water four times a day.

—HORWITZ, *Dunglison's Col. and Clin. Rec.*

**Cystitis:**

Cantharidin (Merck).....	1/100 grn.
Alcohol.....	10 min.
Water.....	2 fl. oz.

Teaspoonful three times a day.

—SUNDENBERG, *Wiener klin. Woch.*

Powd. Ext. Hyoscyamus	} of each, 6 grn.
Powd. Ext. Cannabis	
Indica.....	
Sugar .....	75 grn.

Make into 12 powders and give one powder three times a day. —ULTZMAN, *Med. Record*.

**Chronic Cystitis:**

Methylene Blue <i>Medicinal</i> .....	23 grn.
Powdered Talcum.....	36 grn.
Wool-fat.....	to make 20 pills.

Two to four pills daily.

—JAYS, *Med. Record*.

**Purulent Cystitis:**

Salicylic Acid.....	} of each, 80 grn.
Boric Acid.....	
Hot Water .....	1 qt.

Use for irrigating the bladder.

—RABAW and BOURGET, *Memorabilia*.

**Publications Received**

ALCOHOLIC GASTRITIS. By J. A. Hofheimer, M. D., New York City. Reprinted from *Medical Mirror*.

HOW FAR HAS SPECIALISM BENEFITED THE ORDINARY PRACTICE OF MEDICINE? By L. Duncan Bulkley, A.M., M.D. New York City. Reprinted from *The Bulletin of the American Academy of Medicine*, IV, No. 2.

SOME CONSIDERATIONS IN SUGAR-TESTING, with Description of a Method for the Detection and Estimation of Sugar in the Urine. By Arthur R. Elliott, M.D. Reprinted from *Medicine*, January, 1900.

ACETANILID. Its Use as a Preventive Measure in Premature Expulsion of the Ovum. By Steven Harnsberger, Catlett, Va. Reprinted from *The Journal of the American Medical Association*, October 22, 1898.

ANNUAL REPORT of the J. Hood Wright Memorial Hospital, New York City, for the year ending December 31, 1899.

A COMPENDIUM of Recent Literature on Various Lesions of the Genito-Urinary Tract and Methods of Treatment, Part I. Od Chemical Company, New York and London.

MOUNTAIN FEVER. By E. Stuver, M.D., Fort Collins, Col. Reprinted from *Medical News*, November 4, 1899.

IMPERFECT OR DEFICIENT URINARY EXCRETION. AS OBSERVED in Connection with Certain Diseases of the Skin. By L. Duncan Bulkley, A.M., M.D. Reprinted from *The Transactions of the American Dermatological Association for 1899*.

SOME BENEFITS OF VIVISECTION or Experiments on Living Animals. By E. Stuver, M.Sc., M.D., Ph.D. Reprinted from *Cincinnati Lancet-Clinic*, February 3, 1900.

SANATORIA FOR CONSUMPTIVES. By Beverley Robinson, M.D., New York City. Reprinted from *St. Louis Courier of Medicine*, Jan., 1900.



# MERCK'S ARCHIVES

OF

## THE MATERIA MEDICA <sup>AND</sup> ITS USES

A MONTHLY JOURNAL FOR THE PRACTICING PHYSICIAN

CONDUCTED AND PUBLISHED BY MERCK & CO.

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Vol. II

APRIL, 1900

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### Our \$500 Offer for Papers on Materia Medica and Therapeutics

IN order to encourage the study of practical therapeutics, the publishers of MERCK'S ARCHIVES, in the May number of 1899, offered the sum of \$500 for the ten best papers submitted in a contest, each to be on some remedy or on the drug therapy of some disease. As first announced, November 15, 1899, was the date set for the close of the contest, but the time was extended to January 15, 1900.

The field of choice was as wide as the materia medica, and comprehended the whole of drug therapy. The committee chosen to make the awards was one that had only to be named to assure every reader that it would act impartially. George M. Gould, M.D., editor of the *Philadelphia Medical Journal*, was selected by the ARCHIVES, and asked to choose his associates. He named A. A. Stevens, A.M., M.D., professor of pathology in the Woman's Medical College of Pennsylvania, and P. Maxwell Foshay, M.D., editor of the *Cleveland Journal of Medicine*. They reported as follows:

PHILADELPHIA, PA., March 20, 1900.

MERCK'S ARCHIVES:

The members of the committee honored by MERCK'S ARCHIVES with the appoint-

ment as judges of the Literary Contest, respectfully report that the following essays have been adjudged the ten prizes in the order named:

1. Adonidin: Physiologic and Medicinal Properties, etc. By "Pentaur."

2. A Clinical and Experimental Study of the Local Use of the Aqueous Extract of the Suprarenal Gland. By "Phi Delta Theta."

3. Cannabis Indica: A Study of Its Physiologic Action, Toxic Effects, and Therapeutic Indications. By "Non Dum."

4. A Therapeutic Study of Iodine. By "Questor."

5. The Hypnotic Action of Apomorphine without Nausea. By "Tri-Mount."

6. Methylene Blue in Malaria. By "Bones."

7. Lavage: Its Indications, Materials, and Technique. By "Henry Esmond."

8. The Physiological, Pathological, and Therapeutic Effect of Alcohol on the Human System. By "Eureka."

9. Fireman's Cramp. By "Surgeon."

10. Some Medical Philosophy. By (Picture of a Duck).

The committee by these awards do not imply or express any opinion as to the absolute value of the points raised or commendations urged by the authors, but indicate only an appreciation as to the relative merits, according to the conditions of the contest published in your issue of June, 1899, of the essays offered in competition. Some of the essays were more

than double the number of words to which we understood the essays were restricted. These were, therefore, excluded from consideration. Cordially yours,

(Signed) GEO. M. GOULD,  
A. A. STEVENS,  
P. MAXWELL FOSHAY.

When the editorial staff of the ARCHIVES opened the sealed envelopes bearing the same mottoes and designs as the papers to which the committee had given the awards, it was found that the following gentlemen were the prize winners:

1. Dr. Heinrich Stern, 56 E. 76th street, New York city. \$100.
2. Dr. Lewis S. Somers, 3554 N. Broad street, Philadelphia. \$75.
3. Dr. H. Edwin Lewis, 51 N. Union street, Burlington, Vt. \$75.
4. Dr. A. G. Minshall, Northampton, Mass. \$50.
5. Dr. Charles J. Douglas, 524 Warren street, Boston, Mass. \$50.
6. This author having violated the rules of the contest, his paper was rejected. \$50.
7. Dr. Floy McEwan, 56 Oriental street, Newark, N. J. \$25.
8. Dr. S. H. Johnson, Asbury, N. J. \$25.
9. Dr. Willis Cummings, 156 St. James place, Brooklyn, N. Y. \$25.
10. Dr. W. C. Cooper, Cleves, Hamilton County, Ohio. \$25.

The total number of papers submitted was forty-eight, so that thirty-eight of them failed to get a prize. Some of the papers that were rejected because the authors had made them too long displayed a good deal of merit. These and a number of others will be published in the ARCHIVES during the year as regular contributions in accordance with the announcement. Of those that are scarcely suited to the scope of this journal, there are quite a number that contain some point or points we wish our readers to know. The authors of these have been asked for the privilege of abstraction. In this way the best that the

contest has developed will be laid before our readers during the next few months for their consideration and instruction. A few of the authors seemed to lose entire sight of the fact that the contest was confined to drugs and diseases treated with drugs. The introduction of physical forces or mechanical appliances as means of cure carried papers outside the limits of the contest.

It is always wise for the author of a paper, whether designed for a prize contest or for reading at a medical meeting, to post himself on what others have written or said upon the same subject before him. The ARCHIVES offered to aid those who were unable to gain access to a large number of recent medical journals by supplying them with facts. Had more of the authors accepted our offer their essays might have been materially better and the profession at large would have been the gainer.

We are sorry to observe that the amount of direct experimental work, such as our large dispensaries and hospitals are capable of, was very meager in this contest. Most of the contributions are by the independent members of the profession. We find, by reference to our exchanges, that this is the condition of affairs generally. The amount of work done by those having the facilities for doing it best is discouragingly small. Why is this so? Why, indeed, is the proportion of therapeutic information found in all our American medical journals so insignificant as compared with what it should be considering its importance? This effort of the ARCHIVES has probably called forth more therapeutic papers than will be found in many other American medical journals combined during the present year. The eminent success of our effort is apparent in this fact. It is to be hoped that the stimulus thus imparted will keep up the interest and lead to more and better work of the same kind in the not distant future.

# Adonidin: Physiologic and Medicinal Properties

A PLEA FOR THE EXTENSION OF ITS USE IN THERAPY

By HEINRICH STERN, Ph.D., M.D.

Professor of the diseases of metabolism, College of Physicians and Surgeons, St. Louis; visiting physician New York Red Cross Hospital; attending physician St. Elizabeth's Hospital, member American Chemical Society, American Medical Association, etc. New York City.

## PART I

### PHARMACOGNOSY

THE Adonis species, belonging to the order Ranunculaceæ, are perennial plants inhabiting elevated regions of Central Europe, Southern Russia, Italy, Spain, Turkey, Siberia, and Japan. The genus comprises the following species: *Adonis capensis*, *A. æstivalis*, *A. flava*, *A. gracilis*, *A. amurensis*, *A. vesicatoria*, *A. autumnalis*, *A. cupaniana*, *A. flammea*, *A. pyrenaica*, *A. citrina*, and *A. vernalis*.

The botanical characteristics of *vernalis* have been thoroughly investigated by Marié<sup>1</sup> and Mordagne.<sup>2</sup> The root of *A. vernalis* is ramulose, thready, and of a dark brown color; a number of stems, growing to one foot in height, sprout therefrom. The leaves are pinnated. The flowers are of a beautiful yellow, appearing in April and lasting until the latter part of May. The dried substance of the leaves of *A. vernalis* was found to contain, by Linders,<sup>3</sup> of the laboratory of Prof. Markownikow, 10 per cent. of potassium and calcium in combination with aconitic acid. The active principle of the plant, adonidin, an apparent glucoside, was isolated by Cervello<sup>4</sup> in 1882. Adonidin<sup>5</sup> is an amorphous, yellow or

brown, clear, and odorless powder, possessing an intensely bitter taste. It is insoluble in anhydrous ether, chloroform, benzin, and oil of turpentine; soluble in water, alcohol, and amylic alcohol (fusel oil). Its reaction is neutral.

Adonidin reduces Fehling's solution, provided that some hydrochloric acid has been added prior to heating. This may be proof of the glucosidal character of adonidin, as a glucoside is a complex substance, which, on addition of an acid, is decomposed into glucose and another body.

It occurs, according to Mordagne,<sup>6</sup> not only in the stems and leaves, but also in the rhizomata and roots of the plant.<sup>7</sup> Still, the quantity of the glucoside yielded by *A. vernalis* is comparatively small, as 10 kilos of the plant hardly suffice to furnish 2 Gm. of dry substance.

Adonidin is obtained by the following process:

The leaves, cut into small pieces, are macerated in a mixture composed of 2 parts of water and 1 part of alcohol. At the end of ten days' maceration the alcoholic extract is precipitated with basic lead acetate, filtered and condensed to the consistency of a syrup. The residue is afterwards treated with a concentrated solution of tannic acid and some drops of ammonia. Adonidin tannate, washed with water and decomposed by lime oxide and alcohol, leaves the adonidin. The latter is purified by means of several crystallizations in alcoholized ether.<sup>8</sup>

It has been maintained that adonidin is not a simple but a complex substance. Thus,

<sup>6</sup> Mordagne—*Op. cit.*

<sup>7</sup> It appears that the principal producers of adonidin utilize the root now exclusively in obtaining the glucoside.

<sup>8</sup> For improved method of preparation of adonidin, see *Pharm. Jour. and Trans.* (London), XVI, p. 145, and *Amer. Jour. of Pharm.*, 1887, p. 609.

<sup>1</sup> P. Marié—Thèse pour le Doctorat des Sciences, 1884.

<sup>2</sup> Jehan Mordagne—Étude sur l'Adonis vernalis (botanique, chimie, physiologie, pharmacologie), Thèse de l'École de Pharmacie, Paris, 1885.

<sup>3</sup> Liebig's *Annalen der Chemie*, CLXXIII, 1876.

<sup>4</sup> Vincenzo Cervello—Travaux du laboratoire de Schmiedeberg à Strasbourg, in *Archives italiennes de Biologie*, 1882. Also, Sul Principio attivo dell' *Adonis vernalis*, *Arch. p. le Sc. Mediche*, V, No. 3. Also, *Archiv. für Exp. Path. und Pharm.*, XV, 1882. Also, Sull *Adonis cupaniana*, *Gazzetta chimica Italiana*, 1884.

<sup>5</sup> "Adonidin," of *A. vernalis*, should not be confounded with "Adonin" (C<sub>20</sub>H<sub>40</sub>O<sub>6</sub>), the glucoside and active constituent of *Adonis amurensis*. Dr. Y. Inoko (*Archiv. für experimentelle Pathologie und Pharmakologie*, XXVIII, p. 302, 1891) investigated this glucoside of a Japanese species of adonis and found it free of nitrogen; amorphous, colorless, bitter, soluble in water, alcohol and chloroform, and nearly insoluble in ether. This glucoside is twenty times weaker than adonidin of *A. vernalis*. Symptoms on the frog heart were found by Inoko analogous to those when digitalin was employed—first, increase of systolic contraction, reduction of frequency in pulsation, followed by peristalsis and systolic cessation of the heart muscle.



Podwyssotzki<sup>9</sup> designates picro-adonidin as the active principle, which, together with other constituents of the herb, forms adonidin of commerce. Picro-adonidin is described by its discoverer as an amorphous glucoside of a very bitter taste, and soluble in water, alcohol, and ether. Merck (*Merck's Bulletin*, January, 1893) discovered another principle in the plant, crystallizing in transparent needle-like prisms and fusing at 102° C. The principle—which has been named adonit ( $C_8H_{12}O_5$ ) (tri-oxyglutaric acid), probably identical with Podwyssotzki's adonidulcite—is soluble in water and alcohol, neutral in reaction, not colored brown by alkalis, and does not reduce Fehling's solution.

### HISTORICAL RETROSPECT

The employment of *A. vernalis* in medicine is not of modern origin. Hieronymus Tragus, who discovered the plant on the banks of the Rhine in the year 1544, described it as the true helleborus of Hippocrates.

However, in later years, Tragus became convinced of the non-identity of the two plants, and Mathiolus already designated this species of adonis as "pseudo-helleborus."

Other scientists gradually became acquainted with the plant and it soon found entrance into the shop of the doctor. It was the root which was mostly used. The botanical literature of the eighteenth century<sup>10</sup> repeatedly records that it was the custom to admix radix hellebori nigri with the root of *A. vernalis*. Sometimes this blending was done openly, more frequently the adulteration was kept secret.

Occasionally the root of *A. vernalis* was administered as a succedaneum of radix hellebori. (Buxbaum—*Enumeratio plantarum*, 1721, p. 6.)

"Adonis vernalis possesses the property to heat and dry the organism to a certain degree. Added to a hot bath, it calls forth profuse perspiration and drives out hurtful cold moistness."

G. Frank von Frankenan. (*Flora franca aucta oder Vollst. Kräuterlexikon*, etc., 1766, p. 26.)<sup>11</sup>

Prof. N. Ambodicus (*Materia Medica oder Beschreibung der Arzneipflanzen*, 1789, p. 140) says (cited by Bubnoff), "Chemists found in this remedy (*A. vernalis*) much oil and little salt."

The therapy of the nineteenth century infrequently resorted to *A. vernalis*. When Linders,<sup>12</sup> in 1876, in the first scientific essay on *A. vernalis* ever attempted, again drew attention to it, the drug had almost been forgotten.

Krebel (*Volksmedizin und Volksmittel verschiedener Völkerstämme; Russlands*, Leipzig, u. Heidelberg; C.F. Winter,<sup>13</sup> 1858) describes *A. vernalis* as being a Russian domestic remedy, serving diverse purposes; viz., laxative, anti-diarrheal, anti-colic, anti-convulsive, anti-hysterical, etc. In Southern Russia *A. vernalis* is reputed to be a speedy cure for dropsical affections.

Bubnoff's (Bubnow)<sup>14</sup> communications appeared in 1879 and 1880 respectively. Cervello isolated adonidin in 1882; Rasetti<sup>15</sup> published his investigations in this field in 1884. Lesage's<sup>16</sup> "Note sur l'Action physiologique de l'Adonis vernalis" researches, conducted in the laboratory of Prof. Germain Sec's Clinic at the Hotel Dieu, followed a month later. In the same year Marié<sup>17</sup> published his botanical thesis, and Leublinki cited a number of cases before the Society of Internal Medicine in Berlin, in which *A. vernalis* was not well borne by the system.<sup>18</sup> Durand whose *Memoirs* came forth in 1885,<sup>19</sup> compared the action of digitalin, caffeine, convallaria majalis, and adonidin on the heart, frequency of the pulse, arterial tension, and kidneys. Bouchardat's<sup>20</sup> and Mordagne's<sup>21</sup> researches

<sup>11</sup> Bubnoff—*Op. cit.*

<sup>12</sup> *Op. cit.*

<sup>13</sup> Bubnoff—*Op. cit.*

<sup>14</sup> Bubnoff—*Op. cit.*, and *St. Petersburger Med. Woch.*, 1879, pp. 1 and 256. *Idem*, 1880, p. 306.

<sup>15</sup> Comptes rendus de la Société de Biologie, June, 1884.

<sup>16</sup> Comptes rendus de la Société de Biologie, séance du 25 Juillet, 1884, p. 479.

<sup>17</sup> *Op. cit.*

<sup>18</sup> Verhandlungen des Vereins f. innere Medizin, June, 1884.

<sup>19</sup> Eug. Armand Durand—De l'Action comparée des Médicaments cardiaque, précédé d'une étude sur l'Adonidin, 1885.

<sup>20</sup> Annuaire de Thérapeutique, 1885.

<sup>21</sup> *Op. cit.*

<sup>9</sup> *Pharm. Jour. and Trans.* (London), 1888, p. 346.

<sup>10</sup> N. A. Bubnoff—Ueber die physiologische und therapeutische Wirkung der Adonis vernalis Pflanze. Aus der akademischen Klinik des Prof. S. Botkin, in St. Petersburg, *Deut. Archiv. für klin. Med.*, xxxiii, p. 262.

made their appearance in the same year. Huchard,<sup>22</sup> who conducted his investigations on the action of *A. vernalis* and that of its derivative together with Eloy, took cardiographic and, like Durand, sphygmographic tracings from individuals under the influence of adonidin. Gluzinski<sup>23</sup> and Traversa<sup>24</sup> studied the drug clinically at about the same period.

I failed to notice any allusion to *A. vernalis* or adonidin in American medical literature prior to 1886. On the whole, I am acquainted with only two original observations on the subject, of American origin. Wilson is the author of a communication<sup>25</sup> on the action of the drug, and Hare published an original investigation as to the physiologic and therapeutic properties of adonidin.<sup>26</sup>

Sergiejenko in Kasan conducted a series of experiments with adonidin on both poikilothermic as well as warm-blooded animals<sup>27</sup> in 1888. Eichhorst,<sup>28</sup> speaking of some modern heart remedies, thinks *A. vernalis* uncertain in its action, but Oliver,<sup>29</sup> who published in the same year (1888) a paper on "Adonidin in the Treatment of Heart Disease," is of a different opinion. The same author, in a discourse before the British Medical Association,<sup>30</sup> again alluded to the good effects of adonidin in certain heart affections.

A few briefer communications on *A. vernalis* or the glucoside appeared in the years 1883 to 1886: they were, however, not enumerated in the foregoing because of their unimportance. A glance at this historical sketch impresses one with these facts:

The original scientific data on *A. vernalis* and adonidin appeared within the brief period of fifteen years; most of the pharmacologic investigations took place within half a decade; these drugs have been scarcely

mentioned in medical literature since 1888, and seem to be well-nigh forgotten at the close of the century; and that American observers and clinicians never accorded to *A. vernalis* and adonidin the amount of attention to which they were duly entitled.<sup>31</sup>

In the face of the most universal approval—at the time—of the potency and the generally admitted non-cumulative effect of the glucoside—it seems strange that so valuable a drug as adonidin does not occupy a more conspicuous place in routine therapy.

#### PHARMACODYNAMICS

*Poikilothermic Animals.*—Mordagne (*op. cit.*), after injecting 0.0005 Gm. (0.5 Mg.) of adonidin into a frog, observed at first weakness, then arrhythmia, and finally suspension of cardiac movements. The heart became arrested in systole at the end of 8 minutes and 30 seconds. Cervello (*op. cit.*), who injected into a frog 0.015 Gm. of this glucoside—that is, thirty times that amount—noticed exactly the same phenomena.

Sergiejenko (*op. cit.*) found in the frog immediate reduction in the frequency of the heart-beats after the subcutaneous injection of adonidin; the contractions of the heart grew in force and duration—the ventricle—in diastole—is insufficiently and not instantaneously filled with blood. Dilatation of the ventricle becomes more difficult: dark aneurysmal expansions appear upon the strained heart-muscle. The auricles endeavor in vain to drive the blood into the ventricle, which, in a state of rigid contraction, finally ceases to beat. The auricles, ultimately, remain in diastole. The isolated heart of the frog placed in a solution of adonidin, according to this observer, shows similar changes.

Hare (*op. cit.*), who made studies on the isolated heart of the frog placed into an adonidin-solution (2 grn. to the ounce), cor-

<sup>22</sup> Henri Huchard—Un nouveau Médicament cardiaque, l'Adonis vernalis et l'Adonidin. *Bull. et Memoires de la Société de Thérapeutique*, 1885, 2d série, XII, p. 219.

<sup>23</sup> Cited by the *Therap. Gazette*, July 15, 1885.

<sup>24</sup> *Med. Times and Gazette*, Oct. 21, 1885.

<sup>25</sup> *Med. News*, Jan. 2, 1886.

<sup>26</sup> H. A. Hare—A Study of the Physiological and Therapeutic Effects of Adonidin. *Therap. Gaz.*, April 15, 1886, p. 217.

<sup>27</sup> N. Sergiejenko—Untersuchungen über die Wirkung, des Adonidin. *Gaz. Lek.*, VIII, 32, 1888.

<sup>28</sup> *Corresp. blätt. für Schweizer Aerzte*, XVIII, 2, 1888.

<sup>29</sup> *The Lancet*, 1838, II, p. 1012.

<sup>30</sup> *British Med. Jour.*, Nov. 26, 1892, p. 1156.

<sup>31</sup> Oliver (*op. cit.*) speaks of adonidin as "introduced by Da Costa, who used it as a pure cardiac tonic." As elucidated by the historical retrospect, the remedies in question were first introduced by Russian, Italian, German and French investigators, and not by the eminent clinician of Philadelphia. It is true *A. vernalis* and adonidin receive mention in the magnificent encyclopedic work, *The United States Dispensatory* (Part II, section 2, *Drugs and Medicines* not Official). Shoemaker (*Materia Medica and Therap.*, Philadelphia, II, p. 401) and other American authors, following the lead taken by the United States Dispensatory, also bring short articles on these remedies; but, with the exception of those recounted in the foregoing, no original investigation of these drugs—at least none of any importance—were carried on in this country.

robbrates in general the observations of previous investigators: he is, however, of the opinion that the final arrest of the heart is diastolic, while Cervello and others speak of a cessation in systole.

As destruction of the brain or spinal cord, or division of the pneumo-gastric, does not prevent the phenomena occurring in the heart of the adonized frog (Sergiejenko, *op. cit.*), adonidin must necessarily exert its influence either directly upon the heart-muscle or upon its motor nerve-ganglia or upon the inhibitory filaments of the pneumo-gastric. In cold-blooded animals, therefore, adonidin has to be considered a *direct poison* of the heart-muscle. Its action on the frog heart is like that of digitalin or scillitin, although it is ten times more powerful than either of the last-named substances.

Hare (*op. cit.*), studying the action of adonidin on the nervous system, found that 0.0075 Gm. of the glucoside hypodermatically injected into a medium-sized frog effected in a few moments drowsiness and disinclination to move. Paralysis of sensation occurred somewhere in the course of the afferent nervous system.

*Warm-blooded Animals: Circulation and Nervous System.*—Cervello (*op. cit.*) and Hare (*op. cit.*), after injection of adonidin into mammals, observed at first pronounced increase of arterial pressure and synchronous decrease of pulse-rate. The injection of 0.015 Gm. of adonidin in the jugular vein of a dog weighing 25 lbs. (Hare) calls forth the stage of exaltation of force, which is followed by pronounced decrease of arterial tension, with an increase of pulse-rate. This condition continues for a time, after which arrhythmia and finally diastolic arrest occur.

According to Lesage (*op. cit.*), adonidin causes rigidity and hyphemia of the heart, which becomes arrested in systole. Lesage injected into one of the saphenæ of a dog of 32 kilos weight 0.005 Gm. of adonidin, and noticed a rise of blood-pressure from 16 Cc. mercury to 36 Cc. The pulse, at the same time, declined from 101 to 71.

Huchard (*op. cit.*), who, together with Eloy, conducted five experiments on guinea-pigs weighing 250 to 400 Gm., observed

that after the hypodermatic administration of 0.01 to 0.02 Gm. of adonidin toxic symptoms, as reduction of respiration, and heart-beats, and paralytic phenomena, appeared very rapidly. Death occurred after fifteen to twenty minutes. The divers brands of adonidin, however, acted differently in the hands of these observers, who found numerous pleural and pulmonary ecchymoses and diastolic arrest in all five cadavers.

A dog that receives a toxic dose of adonidin subcutaneously, according to Sergiejenko (*op. cit.*), shows uneasiness in five or ten minutes; makes attempts at mastication and deglutition, breathes rapidly and shallowly, and becomes salivated. The heart-beats become less frequent, but stronger; arterial tension is increased. Following this, vomiting and adynamia occur. Afterwards the heart beats rapidly, but strongly; respiration becomes deeper and slower. Later on arrhythmia is produced, and the arterial pressure decreases very rapidly. The animal remains conscious until death supervenes. Convulsions are frequent. In case the dog survives the poisoning with adonidin, his heart remains arrhythmic for a long time, occasionally for a whole day. In dissecting we find diastolic heart, flaccid muscles, veins filled to excess with blood, passive hyperemia of liver and kidneys, pallor and dryness of spleen, and extravasation into the serous membranes.

Sergiejenko is of the opinion that salivation, vomiting, convulsions, and dyspnea point to an irritation of the medulla oblongata. He also thinks that the action upon the heart is dependent upon the same irritation. The results arrived at by this experimenter concur in general with those obtained by Hare, whose conclusions, in substance, are as follows:

In all cases adonidin causes an increase of arterial tension by irritation of the vasomotor centers, and by increasing cardiac energy. In moderate doses adonidin at the onset causes acceleration of the pulse and its increase in force; if, however, poisonous amounts are administered, the drug primarily calls forth decrease in cardiac action by centric pneumogastric irritation, and then



increases the frequency of the pulse by depressing the inhibitory nerves and stimulating the accelerator apparatus. The decrease in pulse-rate is probably also due in part to an increase in arterial tension, as under these conditions the volume of the blood-vessels is greatly reduced. Adonidin exerts but little influence upon the nervous system, unless the dose administered is excessive. If this is the case it paralyzes the sensory functions of the cord; the motor apparatus, however, remains intact.

*Effects of Adonidin upon the Body Temperature: Personal Observations.*—As the literature at my disposal afforded no information regarding the influence of adonidin upon the temperature of the body, I proceeded to ascertain the eventual effects of the glucoside, with this purpose in view. The influence of therapeutic doses of adonidin upon the body temperature was studied by me in eight healthy young men, ranging in body-weight from 64 to 92 kilos. The glucoside was at first administered by the mouth, and the temperature was taken thirty minutes after the ingestion of the drug. The following table records the results:

No. Persons.	Weight in kilos.	Temperature (rectal) before administration of adonidin	Temperature (rectal) after administration of 0.005 Gm. adonidin	Temperature (rectal) after administration of 0.01 Gm. adonidin	Temperature (rectal) after administration of 0.015 Gm. adonidin
1	92	37.2	37.3	37.3	37.3
2	87.5	37.3	37.3	37.3	37.4
3	81	37.4	37.5	37.5	37.4
4	79.5	37.1	37.2	37.3	37.5
5	73	37.2	37.2	37.4	37.4
6	72.5	37.1	37.2	37.4	37.5
7	66.5	37	37.3	37.2	37.3
8	64	37.2	37.2	37.2	37.2

The *subcutaneous injection* of 0.005 Gm. of adonidin into the same persons was followed by similar results. The body temperature of No. 1 was raised 0.2° C.; of No. 2, 0.1° C.; the body heat of No. 3 did not increase, that of No. 4 was elevated 0.2° C., and that of No. 5 remained unaltered. In No. 6 an increase of 0.2° C., and in No. 7 one of 0.5° were noticed. In the temperature of No. 8 no change occurred. The foregoing figures seem to demon-

strate that adonidin, in therapeutic doses, increases body heat in the healthy individual in nearly every instance, as only the body temperature of one person (No. 8) was not influenced at all by its administration.

*Effects of Adonidin upon Urinary Excretion.*—The influence of the glucoside, in therapeutic doses, upon uropoiesis in healthy men has never been closely studied heretofore. Former observers, with few exceptions, dwelt in a superficial way upon the diuretic effect of the drug in certain *pathologic conditions*, and while alluding to the quantity of urinous fluid secreted, ignore entirely its influence upon the elimination of the excrementitious substances.

FIRST OBSERVATION

Healthy man; 92 kilos. body-weight; average diurnal amount of urine for the three days preceding first administration of adonidin, 1820 Cc. Average figures for the same period: Urine—

Density..... 1019.5 at 15.5° C.  
Degree of acidity... 0.45  
Total solids excreted 82.65 Gm.  
Salts of hydrochloric acid excreted..... 14.4 Gm.  
Carbamide excreted (or urea).... 2.27 or 40.04 Gm.

The twenty-four hours' urine, after ingestion of 0.015 Gm. of adonidin in divided doses, amounted to 2170 Cc. and offered the following characteristics:

Density..... 1016 at 15.5° C.  
Degree of acidity..... 0.39  
Total solids excreted... 80.88 Gm.  
Salts of hydrochloric acid excreted..... 15.19 Gm.  
Carbamide excreted... 1.87 or 39.06 Gm.

The diurnal urine, after administration of 0.03 Gm. of adonidin, in broken doses, amounted to 2430 Cc. Its analysis showed:

Density..... 1014 at 15.5° C.  
Degree of acidity..... 0.57  
Total solids excreted... 82.09 Gm.  
Salts of hydrochloric acid excreted..... 19.44 Gm.  
Carbamide excreted... 1.77 or 41.31 Gm.

The twenty-four hours' urine, after taking 0.05 Gm. of adonidin, in broken doses, amounted to 2450 Cc. and showed on examination:

Density..... 1015 at 15.5° C.  
Degree of acidity..... 0.4  
Total solids excreted... 87.03 Gm.  
Salts of hydrochloric acid excreted..... 20.53 Gm.  
Carbamide excreted... 2.12 or 51.45 Gm.

## SECOND OBSERVATION

Healthy woman; 75.5 kilos body-weight; average diurnal amount of urine for the two days preceding first administration of adonidin, 1380 Cc. Urinalysis (average of two days):

Density ..... 1023 at 15.5°C.  
Degree of acidity ..... 0.33  
Total solids excreted... 63.48 Gm.  
Salts of hydrochloric  
acid excreted..... 13.8 Gm.  
Carbamide excreted... 3% or 1.4 Gm.

Urinalysis—After administration of 0.005 Gm. of adonidin three times during the day:

Amount of diurnal  
urine..... 1610 Cc.  
Density..... 1019.5 at 15.5°C.  
Degree of acidity... 0.36  
Total solids excreted 62.79 Gm.  
Salts of hydrochloric  
acid excreted..... 11.27 Gm.  
Carbamide excreted. 2.1% or 33.81 Gm.

Urinalysis—After ingestion of 0.01 Gm. of adonidin, three times during the day:

Amount of diurnal  
urine..... 1700 Cc.  
Density..... 1018.5 at 15.5°C.  
Degree of acidity ... 0.35  
Total solids excreted 62.9 Gm.  
Salts of hydrochloric  
acid excreted. .... 11.9 Gm.  
Carbamide excreted.. 2.1% or 35.7 Gm.

## THIRD OBSERVATION

Young man; 66.5 kilos. body-weight. Average diurnal amount of urine for the three days preceding first administration of adonidin, 1580 Cc. Urinalysis (average of three days):

Density..... 1020 at 15.5°C.  
Degree of acidity..... 0.4  
Total solids excreted. 63.2 Gm.  
Salts of hydrochloric  
acid excreted..... 12.64 Gm.  
Carbamide excreted.. 2.3% or 44.24 Gm.

Analysis of diurnal urine, after administration of 0.03 Gm. adonidin in broken doses:

Amount voided..... 1900 Cc.  
Density..... 1017 at 15.5°C.  
Degree of acidity ..... 0.38  
Total solids excreted.... 64.6 Gm.  
Salts of hydrochloric acid  
excreted..... 11.4 Gm.  
Carbamide excreted ..... 2% or 38 Gm.

Analysis of diurnal urine after administration of 0.06 Gm. adonidin, in broken doses:

Amount voided. .... 2050 Cc.  
Density..... 1015.5 at 15.5°C.  
Degree of acidity... 0.43  
Total solids excreted 63.55 Gm.  
Salts of hydrochloric  
acid excreted. .... 10.25 Gm.  
Carbamide excreted 2.1% or 43.05 Gm.

Analysis of diurnal urine after administration of 0.12 Gm. adonidin, in broken doses:

Amount voided..... 2320 Cc.  
Density..... 1014 at 15.5°C.  
Degree of acidity..... 0.34  
Total solids excreted.. 64.96 Gm.  
Salts of hydrochloric  
acid excreted..... 13.92 Gm.  
Carbamide excreted... 1.8% or 41.76 Gm.

These observations tend to show that the administration of adonidin to the healthy, in therapeutic doses, is always followed by an increase in urinary secretion. The augmentation, it is true, is rather slight when minimum doses are given; it occurs, however, to a higher degree if somewhat larger amounts of the glucoside are utilized. Nevertheless, adonidin can hardly be considered a true diuretic. It apparently possesses hydragogue properties, but does not, as a general rule, produce synchronous and proportionate increase in the elimination of excrementitious substances.

In the first observation the specific gravity of the urine fell from 1.0195 before the drug was administered to 1.016 when 0.015 Gm., 1.0145 when 0.03 Gm., and 1.01525 when 0.05 Gm. of the glucoside was taken. Notwithstanding an increase of 350 Cc., the diurnal urine after the ingestion of 0.015 Gm. contained less solids than occurred in the urine of the preceding days. When 0.03 Gm. of adonidin was ingested the amount of total solids excreted by the urine was still less than before experimentation was begun, although the urinary fluid increased to 2430 Cc.

Larger absolute amounts of solids were excreted by the urine only after 0.5 Gm. of the glucoside were taken. A decided increase in the elimination of chlorides was noticed even after the administration of the minimum dose. The chlorides, however, although absolutely increased, never increased in the proportion in which they were excreted prior to the administration of the drug.

The output of carbamide, which, when larger doses of adonidin were employed, was increased absolutely, became relatively diminished, as it amounted to 2.2 per cent. on the days preceding the administration of the drug, and to 1.8 per cent., 1.7 per cent. and

2.1 per cent. respectively on the days of experimentation.

The second observation shows the diurnal urine increased from 1380 Cc., in which amount it was voided before the administration of adonidin, to 1610 Cc. when 0.015 Gm., and to 1700 Cc. when 0.03 Gm. of the glucoside was taken. Coincident with the heightened output of urinary fluid, there occurred a decline in its specific gravity from 1.023 to 1.0195 and 1.0185 respectively.

The amount of total solids excreted was changed but little after the administration

of the drug, and a marked decline in the elimination of chlorides, and especially in that of urea, took place.

The third observation showed on the whole similar conditions; viz., increase of diuresis with corresponding decline in specific weight, little change in the output of the total solids, some decline in the excretion of the salts of hydrochloric acid (except when 0.12 Gm. of adonidin was taken per day, when the chlorides were slightly augmented), and, as in the other observations, diminished egestion of carbamide.

[TO BE CONTINUED]

[Written for MERCK'S ARCHIVES]

## Clinical Uses of Ichthalbin

By A. G. SERVOSS, M.D., Havana, Ill.

**A**MONG the drugs presented to the medical profession for use in the last few years, very few have been more highly lauded than ichthyol, which for external application and internal administration has proved itself to be a very useful adjunct to the already large list of drugs and chemicals accessible to the physician for use in his daily practice; but in administering ordinary ichthyol for absorption in the stomach and intestines, it was found that the disagreeable taste, together with the unpleasant eructations, hindered its use in numerous cases.

At this point the chemist was called upon to see if some means could not be devised to render the objections void, and permit the fullest use of this valuable preparation, which nature had preserved intact for years and brought to notice at an opportune time. The result of this agitation was the combination of ichthyol and albumin, so prepared that it is insoluble in the acid juices of the stomach, but on reaching the alkaline fluids in the intestine it is decomposed into its former constituents, thus permitting the medicine to reach the point of assimilation in its natural form or act locally on the intestinal mucous membrane without the disagreeable eructations that inhibited the use of ichthyol in its natural state. This prepa-

ration is called ichthalbin. The function of the albumin is nil from a physiological standpoint, it merely acting as a carrier for the ichthyol, taking it past the stomach before liberating it and making this process of liberation so slow that the medicine is absorbed as rapidly as it becomes soluble.

Ichthyol has for a number of years been recognized as a remedy pre-eminent in its antiseptic or healing qualities, due more perhaps to the large amount of sulphur which it contains, in a soluble form, than to any other reason. This quality exists whether the remedy be given internally or used as a topical application. It has the peculiar property of reducing distended capillaries, and in fact has the same effect on all vascular tissue, rendering ichthyol highly useful as an antiphlogistic—hence its beneficial effects in erysipelas, rosacea, and like diseases.

Administered internally, it ranks first as a promoter of nutrition, and through its action in regulating the bowels it is of much benefit in neurasthenic cases when predominating symptoms are referred to the stomach or bowels. In all of these cases, when the remedy is to be given internally, ichthalbin is to be preferred to ichthyol on account of ease of administration and assimilation, as noted above.



Perhaps the surest method of showing its value will be to refer to a few clinical cases, giving a short history of each, the diagnosis, interesting data, and the progress of the case:

D. F., female, aged 18 years. Acne, black-heads, and pustules plentiful on face and neck—otherwise had clear skin. Several remedies were tried, then a course of ichthalbin internally in  $\frac{1}{2}$  dr. daily doses, with local application of antiseptic preparations to the face. Complete recovery in a month.

Mrs. K., aged 22; hysteria following miscarriage. Affected number of years ago with diphtheria and diphtheritic paralysis, since which time she had several miscarriages, followed by nervous and hysteric trouble. A few days after her last miscarriage, this trouble coming on in an aggravated form, the doctor was hastily summoned, as the patient was supposed to be dying. A case of hysteric epilepsy was found and temporary relief afforded, but try what remedy he would the globus hystericus would return, made worse by symptoms referable to the stomach, bowels, and heart. Ichthalbin was given in combination with zinc phosphide and nux vomica, with the result that the patient rapidly recovered her normal condition, with cessation of the annoying symptoms and a rapid increase of appetite, weight, and sense of well-being. It is only fair to state that the zinc phosphide and nux vomica had been given for some time before in connection with other remedies without material benefit.

Mrs. A. was another case of like trouble, except that her condition was caused by child-bearing. Patient was much reduced in weight, had bronchial rales, indigestion, and fainting spells that would last for two or three hours, during which time face and hands would become blue. Attacks worse about the time of monthly flow and always began with symptoms of indigestion and globus hystericus. Patient was given routine treatment for neurasthenia, also treatment by electricity, and treated locally for endometritis for several months. She seemed to improve except when these attacks came on at monthly periods, when the benefit derived during the previous three weeks would disappear, and the patient appear to be as bad as ever. After thorough trial of other remedies, ichthalbin was given in doses of 40 grn. daily, since which time she has had no recurrence and is rapidly gaining in weight.

D. V., young man, aged 30. General tuberculosis. At the time he was first seen, lungs were affected and microscope showed tubercle bacilli. Intestinal glands enlarged, general anasarca; cavity tapped and 2 gal. of fluid withdrawn. In connection with other medicines, ichthalbin was given. The cough improved, but otherwise no

benefit was derived. Died in six weeks after being tapped.

F. E., female, aged 30. Acute erysipelas. Inflammation very severe, accompanied by high temperature. Ichthyol applied locally and ichthalbin given internally, with remedy for fever. Recovery was prompt and complete, with a slight recurrence in five months, which responded to same treatment.

C. G., man, aged 65. Chronic diarrhea. Had had stomach trouble for years and for last three summers severe diarrhea. Could eat scarcely anything. Was much reduced in weight; some suspicion of tubercular trouble. Ichthalbin, 8 grn. three times a day, produced a marvellous change for the better in discharges and general condition, weight increasing to more than usual. Patient can now eat what he desires.

The remedy was used in a number of cases of diarrhea with perfect results. This has caused me to wonder why its antiseptic and germicidal qualities would not be of benefit in typhoid fever, but so far I have had no opportunity to experiment with it in that disease.

R. N., male, aged 56. Intestinal indigestion. General enlargement of abdomen, intestinal indigestion, with pain and swelling in region of colon. Diagnosed as colitis, while flatus and bloating existed to such an extent that he could not button his clothes. An extensive course of digestive and intestinal antiseptics was given without relief. In this case the remedy was exhibited without much hope of doing good, but the patient felt he must have something or try another doctor. The medicine was given and with success. The patient now is free from bloating, can fasten his clothes, and daily performs manual labor, being a farmer.

Though I have notes on many cases similar in nature, it will not be necessary to further illustrate the line of cases in which this remedy has been used to advantage. I would, however, call particular attention to the principles on which the use of this remedy is founded.

1. It is wholly tasteless unless administered in an alkaline menstruum, but is best given dry on the tongue or in capsules.
2. It is wholly innocuous, and any dose may be given.
3. It is slowly soluble in alkaline fluids.
4. Invaluable as an intestinal antiseptic, at the same time regulating the bowels.
5. Stimulates nutrition, increases sense of well-being, and removes cause of neurasthenia and hysteria.

# Use of Guaiacol in Malaria

By CHAS. J. WHALEN, M.D., LL.B.

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PERHAPS some of my readers will remember that in the early part of last year (May 31) I read a paper on "Guaiacol in Malaria" before the Chicago Medical Society. The article was published in the *Chicago Medical Recorder*, XVII, No. 1. In that paper I stated that in the treatment of malaria quinine has been the great panacea, but that obstinate cases of intermittent fever are observed in which quinine has no effect whatever, especially where there are parasites such as were brought home from Cuba by our soldier boys. At the time of publication of my first article my experience was limited to four cases treated with guaiacol; as they were under observation at the time the article appeared I propose now to bring their histories up to date and to report a few additional cases treated since that time with the same remedy.

Case I.—H. G. S., aged 25; single; taken ill at Santiago, Cuba, July 28, '98, with dysentery; had his first chill August 5 at three A. M. Chills reappeared every morning at the same hour until he arrived home in Chicago, September 7. He was greatly emaciated, weighing only 115 lbs.; was at once taken to the Presbyterian Hospital. Physical condition very bad, spleen easily palpable. Blood examination revealed endoglobular plasmodia, with numerous pigment granules actively motile and a number of endoglobular crescents. Patient was very susceptible to quinine, which always produced symptoms referable to the brain, such as fullness in the head, frontal headache, and delirium. However, he was able to take 20 grn. a day when combined with dilute hydrochloric acid. He remained in the hospital twenty-five days and gained 15 lbs. in weight. Went to New York City, where he remained sixty days; all this time he continued to take quinine; no chill, but he claims that during all that time his whole body ached constantly. One week before departing for home he discontinued taking quinine, and while on his way had a severe chill lasting three hours, his temperature going as high as 106° F. After his arrival in Chicago he had chills every twenty-four days for the following three months, and at each attack he was confined to his bed from four to six days. He was constantly under physicians'

care, but they seemed unable to control his chills and fever. April 4, 1899, he came to see me, greatly discouraged, having had chills every other day, coming an hour and a quarter earlier each time, and one week before coming to see me he had them every day.

Knowing that all the supposed specifics had failed in this case, and as he was then having fever of 106°, I resolved to try guaiacol, hoping at least to control the temperature. This was on Tuesday, April 4. He began with 5 drops after meals, with instructions to increase 1 drop each day until he was taking 20 drops three times a day; he had a chill Wednesday and a lighter one Thursday. He gained in weight and strength rapidly, and was feeling so well that on May 1 he discontinued guaiacol, and on May 4 had a chill, repeated on the 6th. This incident would seem to prove that the adult segmating organism is not effected by the drug, while the free and growing spores constantly imbibing nourishment from the plasma of the blood are readily destroyed or prevented from entering new corpuscles.

Blood examination: Fleischl's hemometer showed 40 per cent. of hemoglobin. The hematocrit showed that the blood contained a little over 3,500,000 red corpuscles per cubic millimeter.

Patient continued the guaiacol in the regular dosage until June 1, at which time he began decreasing the amount taken each time, and on June 18 he discontinued it entirely; had no subsequent chills or fever. As this patient still showed the effects of the malarial cachexia, he was placed upon red bone marrow, and he gained in flesh, strength, and color. Within a few days afterward marked aphrodisiac effects were noticed. At the present time the patient is as well as before the malarial infection.

Case II.—Tertian fever: W. B. C., aged 23; married, had yellow fever in Santiago, July 30, 1898. After recovering he began to have chills, every day at first and then every other day. Had been in the hospital nearly all the time since his return home until I saw him, November 5. Blood examination revealed endoglobular plasmodia with numerous pigment cells. Physical examination showed a very tender and greatly enlarged spleen, extending six inches below costal arch. Quinine, 40 or 50 and even 90 grn. a day was used to control chills, which would come every two weeks in spite of the quinine. On November 25, while on a trip to Ohio, he had a severe attack. He passed from under my care, but still continued to take quinine in different combinations until he came to me, April 9, 1899.

complaining of having chills and fever every day for a month. He had emaciated very rapidly and was unable to retain anything on his stomach excepting apples, which he relished. His skin was a saffron yellow. Complained of breathlessness on the slightest exertion, no edema or hemorrhages. Spleen now extending nearly 7 inches below costal arch, and he perspired constantly. Temperature,  $102^{\circ}$  F.; pulse, 100. I placed him on guaiacol, beginning with 5 drops, increasing 1 drop each day. Returned April 12 and said he felt first-rate; temperature normal, and had no chills since beginning guaiacol treatment. He was hungry and retained food without any unpleasantness. April 18: temperature,  $99.8^{\circ}$  F.; no chills since beginning treatment the last time. Taking guaiacol in 15-drop doses. May 6: temperature, normal; gained 19 lbs. in two weeks; strength somewhat improved. May 31: blood examination showed 50 per cent. hemoglobin. The hematocrit showed that the blood contained 3,000,000 red corpuscles per cubic millimeter. Physical examination showed the spleen extending only 5 inches below the costal arch. The patient continued to take guaiacol for one month, and as there was no manifestation of the return of chills and fever the remedy was discontinued. As this patient too showed the effects of malarial cachexia, he was placed on the red bone marrow, and within three days the aphrodisiac effect was noted as in the first case. Patient is now apparently in normal health.

Case III.—Quartan form of malaria, E. G. R., aged 25; single. When he arrived home from Cuba, September 7, 1898, he was greatly run down, weighing only 112 lbs. Had his first chill in December, which was eight or nine weeks after arriving in Chicago. Had noted a temperature as high as  $107^{\circ}$  F. He came to me May 1, 1899; had been having chills three days in succession. Physical examination showed that his spleen extended 3 inches below costal arch. Blood examination revealed hyaline bodies of irregular shape, irregularly pigmented with large coarse granules. Hematocrit showed that the blood contained about 3,000,500 red blood corpuscles to the cubic millimeter, and the hemoglobinometer showed that it contained 50 per cent. hemoglobin. Patient claimed that he was unable to satisfy the desire for water. Borborygmus was a source of great annoyance to him, and a symptom from which he especially desired to be relieved. I placed him on guaiacol, 5 min. three times a day, to be increased the same as in other cases just cited.

May 15: borborygmus entirely relieved, no chill since May 6; gained 8 lbs. in twelve days. June 15: had been unable to take more than the 14 drops of guaiacol because of disturbance of the stomach, and as this amount seemed insufficient to control completely the chills and fever, I advised him to continue the internal medication and

in connection to paint 20 drops three times a day over the abdomen. June 25: felt much improved, but had symptoms similar to those which heretofore preceded the chill. I advised him to increase the external applications to 40 min. three times a day. September 30; discharged cured.

Case IV.—L. W., aged 27. I first saw patient October 8, 1898. He gave a history of chills and fever, which began two weeks before leaving Cuba. Had a chill every three days until one week after his arrival home, when he took an Indian malarial cure, which arrested the chill, but four days after taking it, he became troubled with dysentery, which reduced him from 132 to 105 lbs. About the same time his chills and fever returned every three days as before. I gave him quinine in large doses, which checked dysentery, but it failed to control the chills. He continued doctoring himself until April 17, 1899, when he again called to consult me. He claimed that his chills came on once and sometimes twice a week. I put him on the guaiacol, as in the other cases, excepting that he began with 10-drop doses.

April 21: guaiacol disturbed his stomach and he discontinued its use; chills returned as usual. Without advice he had returned to the quinine, and as before it failed to control the chills and fever. I advised him to apply guaiacol externally, 20 min. three times a day to be painted over the abdomen with a camel's hair brush, and for the present to discontinue its internal administration. April 30: he continued to paint the guaiacol externally, and chills were much lighter in character. I advised him to increase the amount applied externally to 40 drops three times a day, and to take 3 min. in capsule after meals, to increase it 1 drop each day. May 22: was taking 15 drops internally three times a day, in connection with the 2 fl. dr. applied externally, and claimed that for the first time in eight months that he had been two weeks without a chill. June 25: had been free from chills for seven weeks, so discontinued the guaiacol. Patient had gained comparatively little strength. Ordered red bone marrow, 2 dr. after meals. August 1: the aphrodisiac effect of the marrow was immediately noted as in the other cases. He improved in strength and color, and claimed to feel as well as before going to Cuba. Discharged cured.

Case V.—Tertian fever: J. A., aged 30. Had yellow fever about the middle of July, 1898, at Siboney. Was taken ill October 15 with a chill lasting three hours. Patient was treated in a hospital for four weeks, and was free from chill for about two months, when he began having chills again. He came to me May 24, 1899. Had had a chill every day for a week; temperature,  $105^{\circ}$  F.; pulse, 110. The spleen was easily palpable. A blood examination revealed endoglobular plasmodia, with scant pigment granules



sluggishly motile. Quinine in 10-grn. doses four times a day was ordered. Patient showed an idiosyncrasy to quinine. It producing even in small doses an erythema and severe itching of the body; roaring in the ears and gastric pains.

June 1: after trying in vain to control the chills and fever with quinine. I ordered 30 min. of guaiacol painted over the abdomen three times a day, and 5 min. were ordered to be taken internally after meals, to be increased the same as in the previous cases. This completely broke up the paroxysms, and after six weeks' treatment it was discontinued. Patient had no subsequent attacks, and at the time of writing claimed to be as well as before infection.

Case VI.—J. F., aged 24. Taken ill August 31, 1898, with chills and fever. He had a chill every night for six weeks, at which time he was taken to a hospital in New York, where he remained for four weeks. After leaving the hospital he seemed well for two months, and then began having chills every three weeks, growing more severe each attack, and also growing more frequent.

Came to see me on May 25. Temperature, 103° F.; pulse, 100. A blood examination revealed numerous endoglobular plasmodia, with small, fine, very active pigment granules. Large endoglobular plasmodia, with coarse, sluggish granules, were also found. This apparently was a case of tertian and quartan malaria, the paroxysms developing daily. It would be natural to suppose this a case of double tertian or triple quartan, were it not for the character of the plasmodia found. As this patient claimed to have taken as high as 100 grn. of quinine a day without deriving any benefit from it, and had taken methylene blue, medicinal, with a similar result, I placed him on 5 min. of the guaiacol after meals, at the same time applying it externally as in the other cases.

June 3: no chills and fever since beginning last treatment. He claimed to be gaining in weight and strength rapidly, and later was discharged cured.

Case VII.—J. F., aged 27. In August, 1898, he found himself gradually losing strength. Had chills at intervals of about three weeks, and later once a week. Came to see me on June 1, 1899. Found him considerably emaciated, with a temperature of 103.5° F. The spleen extended 3 inches below the costal arch. Blood examination revealed endoglobular plasmodia, a corpuscular protoplasm decolorized and of hyaline appearance; fine pigment granules, with active motility; the corpuscles enlarged, the plasmodium occupying four-fifths of the corpuscle, and well outlined. It was, therefore, a case of double tertian. Ordered quinine, 10-grn. doses three times a day. This produced an erythema, ringing in the ears, and frontal headache. Two days later I substituted methylene blue, medicinal. The chills

continued as before. After a two weeks' trial, I again put him on the quinine, but had to discontinue it because of the patient's idiosyncrasy to this drug.

June 26: ordered guaiacol internally after meals, the dose to be increased in the same manner as in the other cases. I also advised the external application of 40 drops each time, as previously recommended. July 25: as there was no indication of chills since beginning guaiacol, the patient was allowed to discontinue it, but instructed to resume its use on the slightest indication of the return of chills and fever. Later patient was discharged cured.

Case VIII.—V. R.: had malaria in the fall of 1897. Ill six weeks. Recurrence in March, 1898. Was taken with fever October 31, but prior to the fever had been having dysentery for one week. He remained under a physician's care for four weeks, his case having been diagnosed as typhoid fever. Patient never regained his strength, and seemed at times to have considerable fever. He came to see me June 6, 1899, at which time he complained of having had chills five days in succession. Temperature, 104° F.; pulse, 106; respiration, 25; physical state fairly good, but spleen easily palpable, extending 2 inches below costal arch. Blood examination revealed the presence of a large endoglobular plasmodium, with coarse pigment granules, very motile; also crescents, with sluggishly motile granules. Guaiacol given as in former cases, with instructions to report results from time to time.

July 1: patient seemed to have completely regained his strength and color. Spleen scarcely palpable. Discontinued guaiacol, as there had been no chills or fever since beginning its use. August 30: patient claimed to be as well as at any time during his life, and was discharged, apparently cured.

Case IX.—G. W., aged 30. Was taken ill at Chickamauga, and the case was diagnosed as typhoid fever. He had frequent bowel movements, abdominal tenderness, and was delirious a greater part of the time. He was treated in a hospital in Brooklyn, where he remained six weeks. After leaving the hospital he seemed well for ten weeks, at which time he began having daily afternoon exacerbation of temperature. He came to me June 1, 1899. I noted a temperature of 104° F. Spleen palpable. Blood revealed a crescentic body; also a small endoglobular body was observed, with sluggish pigment granules. Ehrlich's reaction was negative. He was first given quinine and later methylene blue, medicinal, was tried, but without effect on the temperature range. June 20: guaiacol externally and internally reduced temperature from 105 to 100° F. in two and one-half hours. This treatment was kept up for six weeks, at which time he saw fit to discontinue it because the fever seemed

completely under control. The patient is now in perfect health.

Case X.—J. J., aged 32. In 1898, while in Cuba, had chills and fever, which yielded to quinine in a few days. Three weeks later had an attack lasting four days, and again in three weeks was ill three days. The attacks commenced with one paroxysm of chills and fever, no recurrence taking place until the effects of the quinine wore away. He came to me on June 6, 1899.

Four weeks previously he had been attacked by pain in the bowels, followed by dysentery and the passage of slimy mucus tinged with blood. Temperature,  $102^{\circ}$  F.; spleen considerably enlarged. A blood examination revealed the presence of a large endoglobular plasmodium, the blood corpuscle decolorized, with pigment granules having a sluggish movement. June 8: had a chill lasting forty minutes, and the temperature after the chill was  $104^{\circ}$  F. A similar occurrence took place on the ninth, and was repeated again on the tenth. Guaiacol in the usual way was recommended, and there has been no chill or fever since under the exhibition of guaiacol. Undoubtedly a case of double tertian.

Case XI.—R. A., aged 28. Had yellow fever in Siboney late in July, 1898. Two weeks after returning to this country he had a chill, repeated again in about three weeks. Was apparently well for a time, but about January 1, 1899, he began having chills at regular intervals. He came to see me June 26, 1899. Said he had been having chills and fever every day. Ehrlich's reaction was found. Blood examination revealed very small endoglobular plasmodia, with fine pigment granules. One very small ectoglobular body, with very fine, scarcely discernible, pigment granules. Undoubtedly a case of double tertian. As this patient had been taking quinine before his consulting me I considered it useless to experiment further with the drug. I therefore placed him on the guaiacol in the same manner as in the other cases, and as there had been no chill or fever since beginning its use he was allowed on July 15 to discontinue it. He now claims to enjoy as good health as he did before becoming infected.

Case XII.—P. D., aged 20. September 19, 1899, had a severe chill, accompanied by backache, headache, and anorexia. When called to see him I found that he had a temperature of  $104^{\circ}$  F., pulse, 100. Patient was restless and delirious. Spleen not palpable. Blood examination revealed the presence of crescents. Guaiacol externally reduced the fever  $3^{\circ}$  in two hours. Patient regained consciousness in the same length of time, and continued only the external application for the following six weeks, at the end of which time the guaiacol was discontinued. He has never had any return of the symptoms and is to-day enjoying perfect health.

Case XIII.—C. V., aged 24. Called to see me September 26. Had been having chills and fever for six months; taken a great deal of quinine and other remedies given him by physicians, but to no avail. Temperature  $104^{\circ}$  F. Spleen was easily palpable. Blood examination revealed hyaline bodies of irregular shape, irregularly pigmented with large, coarse granules. It was, therefore, the quartan form of malaria. Local application of 30 min. of guaiacol to the thorax brought the temperature down to  $98^{\circ}$  F. after a profuse perspiration. The following afternoon the temperature rose to  $103.5^{\circ}$  F. Daily applications of the guaiacol were continued for four weeks, and as the patient remained free from chills and fever he was allowed to discontinue guaiacol and to return to his home in Indiana. In a recent communication he claims to have completely regained his health.

In looking over this paper, it will be readily seen that in nearly all these cases quinine had been used and that it failed to effect a cure. Two of this number have already appeared in literature as having been cured by quinine, but it is evident that the reports were made out too soon, for it was only a cessation of the chills for a sufficient length of time to enable the patient to leave the hospital. The good effects were in all likelihood due to the stimulating effect of being home and among friends. In cases Nos. 1 and 2 the symptoms returned with greater severity after a few months, and on their reappearance quinine exerted no influence whatever over them.

Since the publication of my first article I have noticed many rosy reports from English writers on the benefits of guaiacol in obstinate forms of malaria, and after a careful, conscientious, and unbiased observation of many patients treated in this way I venture to say that guaiacol far surpasses any remedy so far recommended for malaria, as, in my practice, it has cured in every instance where quinine and other remedies have failed.

When I presented my first paper I was rather skeptical as to the good results that would be derived in every case treated with this remedy, but after a more or less extensive experience with it I have arrived at the conclusion that while it may not be a specific in malarial fever, we do possess in guaiacol a therapeutic agent of great value in the treatment of this disease.

# Preparations of Mercury

By VIRGINIUS W. GAYLE, M.D.

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MERCURY is an irritant poison and is in more common use, perhaps, than any member of the "therapeutist's armamentarium." It is used in a variety of forms, but their general action is analogous, the main differences being in the solubility of the various salts. A soluble salt in contact with the tissues acts quickly and more powerfully locally than one that is not soluble, but when sufficient of the insoluble salt is absorbed, the general effects are the same. Mercury is absorbed and taken up into the circulation usually as an albuminate. It is said that when calomel is injected hypodermatically the leucocytes take it up, and it is possible that it is taken up in the same way when administered by the mouth.

We have found out in late years that the absorption of calomel is promoted by administering it in small doses,  $\frac{1}{10}$  to  $\frac{1}{4}$  grm. every hour, in combination with an alkaline carbonate, as sodium bicarbonate. Investigators tell us it is transformed into the gray or black oxide in presence of an alkaline medium. Again, it may be there is a formation of the double salt of mercury and sodium chloride. The condition of the stomach may be a factor. When taken fasting, only a small part of the mercury is dissolved, while taken during digestion it may be wholly decomposed by the action of the proteids. It is advocated by some that corrosive sublimate is the only hepatic stimulant, per se, and that calomel and blue mass act as cholagogues only by stimulating the mucous membrane of the duodenum, thereby causing reflex contraction of the gall bladder.

Corrosive sublimate and the iodides are more soluble and are readily absorbed from blistered surfaces. Corrosive sublimate in stimulating the hepatic function increases the formation of urea and acts as a diuretic. Mercury, when finely subdivided by trituration and applied in the form of an ointment to the skin, passes into the gland

ducts and along the roots of the hairs, and after being oxidized is dissolved and absorbed into the tissues and produces mercurial effects.

Mercury increases the red corpuscles and improves nutrition when given in small doses, not too often. It is said to lessen plastic exudate in inflammations of serous membranes, and therefore acts as an anti-phlogistic in such diseases as pleuritis, peritonitis, pericarditis, and iritis, also beneficial in pseudo-membranous laryngitis. Calomel and blue mass are the most desirable forms in these cases.

Brunton has pointed out that the liver not only *secretes* bile, but *excretes* it, separating from the blood a part of that which normally circulates in it, which does not give rise to jaundice, but passes from the liver to the duodenum, thence to the blood, and so to the liver again, a portion passing out by the feces. Therefore, mercury possibly acts as a true cholagogue by increasing the elimination of bile and lessening the amount going through the portal circulation, relieving the liver in this way rather than by stimulating its secretion. One cannot gainsay it. Mercurial stools contain bile. Mercury may and does produce abortion, but it is a safe procedure to give syphilitic women mercurials in order to prevent it.

Cushing says "a moderate dose of calomel induces marked diuresis, particularly in cases in which there is a large accumulation of fluid in the body, as in dropsy from heart-disease; in other forms of dropsy, such as that arising from hepatic cirrhosis or from renal disease, it is less reliable, although it not infrequently increases the flow of urine in these cases also. When purging follows the administration of the mercurial less diuretic effect is observed." In saying "biliousness is not due to the liver, but to disorder of the alimentary tract," I do not entirely subscribe to his dictum, but I do think that *many* of the so-



called "bilious attacks" are the result of the absorption of ptomaines from the alimentary canal. Therefore, as mercurials are antiseptic, these conditions may be prevented or cured by the administration of suitable preparations of mercury.

Mercurials produce poisoning whether used by the mouth, hypodermatically, by inunction, or by fumigation. Chronic mercurialization affects about all the tissues of the body, as a rule producing a general cachexia. Many of the symptoms of chronic poisoning are obscure—partial anesthesia, pains in joints, tremor, inco-ordination of movements, muscular weakness, but not atrophy. Mercury is usually eliminated by the intestine and kidneys, however, to some extent by all of the excretories. It should not be allowed to produce symptoms of chronic poisoning, and this is likely to occur only in the treatment of syphilis, where long-continued use of the drug is advisable and advocated. The remedy should never be given in the primary stage of syphilis, others to the contrary notwithstanding. It may be given for months, even for a year or two, without trouble, if properly used, whether it be the oleate or ointment by inunction, corrosive sublimate hypodermatically, or the protoiodide by the mouth; if the latter, combine it with iron by hydrogen and better results will follow. The intravenous injection is dangerous and unnecessary. Suppositories do no good, and fumigations are very inconvenient. The corrosive sublimate may be dissolved in glycerin and distilled water and injected hypodermatically in the subscapular region, and is usually not painful. Benzoate, cyanide, and peptonate of mercury are all used subcutaneously in syphilis. Mercurous tannate by the mouth is used by some, but I see no advantage over the green iodide combined with Quevenne's iron. Mercuriol is mercury nucleide, containing 10 per cent. of mercury, and is a bactericide. The yellow oxide of mercury as a prophylactic against dysentery, enteric fever, etc., and in the treatment of septic dyspepsia, is attracting some attention, and justly. Dr. Ludwig Schaffer was the first to bring this subject to our attention.

Tropical dysentery has been markedly benefited by giving small doses of calomel and using caloric lavage—hot carbolized water to the extent of 300 Cc., repeated two or three times a day.

**Dionin** has been used by Dr. Fedor Plessner,<sup>1</sup> of Wiesbaden, in four cases as a substitute for morphine in the cure of the *morphine habit*, and in seven cases where no morphinism existed, but where a narcotic was necessary, and the author gives the clinical histories. The injections were uniformly painless, even in the smallest doses, a fact of considerable importance where dionin is to be given instead of morphine without the patient's knowledge. The dose to be employed depends largely upon the doses of morphine to be replaced. In order not to employ the dionin in too large doses, the author ordinarily greatly reduced the quantity of morphine given, and then administered the dionin in double amount. While not enthusiastic in regarding dionin as a remedy that will replace morphine in the treatment of morphinism, he nevertheless regards it with great favor because of its apparent ability to relieve the annoying symptoms observed during the cure of morphinism, and because it may be given for a long period without harm, as the observations so far made appear to show.

The author believes dionin to be of more value as a means of preventing the acquirement of the morphine habit. The cases above mentioned, in which a narcotic was indicated, comprised phthisical coughs, bronchitis, and other diseases of the respiratory organs; asthma, sciatica, tabes, and dysmenorrhea. In all of these the dionin was amply sufficient to accomplish relief when given in suitable doses without the patients in any manner acquiring a taste for the preparation.

**Dr. T. H. Newlands**, of the New York City Health Department, writes that he has used syrup of thiocol and tablets of dionin in three cases of *phthisis* in the second stage, where coughing was excessive, night-sweats very bad, and patients run down to extreme debility. He says that "After using these remedies for several weeks. I found that the cough became much less, and patients improved generally over 70 per cent. in three weeks' time." He also adds "will say without any doubt that thiocol is the best remedy that I have ever used in phthisis up to this time."

<sup>1</sup> *Therap. Monatsh.*, XIV, p. 80.

## Hydrochloric Acid and Pepsin Medication

THE above subject was considered by the Paris Academy at a recent session in a lecture given by Dr. G. Linossier,<sup>1</sup> of Lyon. He stated that medication by means of hydrochloric acid and pepsin seemed to be little in favor, the objections to it being both theoretical and practical—its use being frequently unsuccessful for the attainment of the result sought. The objections on theoretical grounds are not decisive. It has been said that pepsin and its zymogen are rarely wanting in the stomach, and if only a small quantity is present it is sufficient to digest a large quantity of albumin. The fact is as stated, and the writer seldom failed to find pepsin in numerous analyses of the gastric juice; but the inference that a small quantity is sufficient for digestive purposes is erroneous. It cannot perform the digestion in the limited time; there is often too small an amount to accomplish the chemical change in the few hours allotted to digestion. The objection has been raised that the chemical function of the stomach is of only limited importance, that its rôle is chiefly mechanical and limited to the assorting of foods and their rhythmic distribution to the duodenum; but even this assorting is a chemical work, the result of the combined action of the acid and pepsin. For example, when bread is the food in question, the gluten is separated from the starch grains by being peptonized and dissolved.

Georges and Bourget have objected that pepsin added *in vitro* to an insufficient quantity of gastric juice not only does not make it more active, but may even diminish its action on albuminoids. The writer admits this, but lays it to impurity of the pepsin and to the peculiar conditions of digestion in the limited medium.

The objections from practice he holds to be not less specious because of the ridiculously small doses of acid and pepsin given. In liquids taken from the human

stomach in which the gastric juice is diluted by food and drink, the proportion of HCl oscillates around 0.2 per cent. Admitting that it is not higher in the gastric juice itself and accepting as correct the findings of physiologists who reckon the quantity of gastric juice secreted daily at one-tenth the body-weight, we arrive at the conclusion that a man of 65 kilos (143 lbs.) secretes daily about 13 Gm. (3½ fl. dr.) of absolute HCl a day, equivalent to 40 Gm. (10 fl. dr.) of the official Codex (33.3 per cent.) HCl.

In cases of subacidity the richness of the gastric juice in HCl is frequently lowered by one-half. Taking no account of variations from this, and admitting that the total quantity of gastric juice secreted has undergone no sudden diminution as often happens, there is still in such cases a daily deficit corresponding to 20 Gm. (5 fl. dr.) of the official HCl. How is HCl given to make up for this deficiency? At most 0.5 Gm. (8 drops), the twentieth part of what would be sufficient! In what state is it given? In a solution never stronger than 0.4 per cent. of the strong acid; i. e., 0.175 per cent. of absolute HCl. That is, the reinforcing solution administered is weaker in acidity than the normal gastric juice and should itself be reinforced.

The conclusion made is unavoidable, even if the quantities used in the calculation are double those fairly assumed to be correct.

The same considerations apply to pepsin. Pure pepsin has never been isolated, nor other enzymes. Hence it is impossible to measure the valuation of this ferment in the gastric juice in the way that of HCl has just been measured; but the digestive activity of the liquids taken from the human stomach can be compared with the starch-diluted pepsin of the Codex. Three-fourths of a grain (0.05 Gm.) of this pepsin was found by the author to correspond in digestive activity to 1 Cc. (16 min.) of gastric chyme taken from the human stomach an hour after an Ewald test-meal. The gastric juice being in quantity about  $\frac{1}{10}$ th the body-weight, a man of 65 kilos secretes daily the equivalent of 325 Gm. of the pepsin of the Codex [1 Cc. of gastric juice =

<sup>1</sup>*Rev. de Thérap. méd.-chir.*, 1899, No. 24, pp. 834-837; 1900, No. 1, pp. 13-15; and *Bul. gén. de Thérap.*, 1899, CXXXVIII, pp. 882-912; and CXXXIX, pp. 15-24.

0.05 Gm. (of starchy pepsin of Codex), then 100 Cc.=5 Gm. Then 6500 Cc. ( $\frac{1}{10}$ th of 65 kilos) = 325 Gm. (=10 oz.). Now, if in a given case the secretion becomes insufficient, how inadequate would be the administration of 0.5 Gm. (8 grn.) of pepsin to supply the deficiency—100 or 200 times as much would be really needed.

The giving of HCl is limited by its strongly acid taste; that of pepsin by its low activity, especially in the form of amylaceous pepsin; but we can give doses of HCl much larger than the usual doses by associating them with albumin, thus:

Whites of egg, 2	
Sugar .....	30 Gm. (1 oz.)
Distilled Water...to make	150 Cc. (5 oz.)
Dil. Hydrochloric Acid }	
(1:9 of Codex acid) }	30 Cc. (1 fl. oz.)

Mix the water and white of egg, dissolve the sugar in it, add the acid little by little and strain through fine linen. This mixture has a burning but not unpleasant taste, and is best taken through a glass tube to avoid contact with the teeth. It contains 15 Gm. (4 dr.) of the Codex acid to a liter (quart); i. e., it is nearly four times as rich as the strongest solutions taken by patients. As prepared it would indicate a strength of 0.5 per cent., but one part of acid is fixed by the albumin. The author has found on analysis that it contains

Free HCl.....	2.75 per 1000
Total Acid .....	4.4 " "

so that it is really richer than normal gastric juice and capable of enriching one that is too weak. It might easily be given stronger; but if given weaker, it is an agreeable drink without the burning taste of the stronger preparation. To avoid evil effects elsewhere from the use of the large doses of HCl, 12 grn. of sodium bicarbonate may be given towards the end of the digestive period for each gram (15 grn.) of absolute acid taken.

The amylaceous pepsin of the Codex ought to be discarded. When the tendency is to condense natural medicines into the smallest bulk, it is strange the Codex prescribes *diluted* pepsin capable of digesting only twenty times its weight of fibrin, when it is easy to obtain an activity ten times as great. Only strong pepsins should be used

and only in large doses. With 4 or 5 Gm. of a pepsin, strength 200, an effect is obtained equal to that of 40 or 50 Gm. of the Codex pepsin. Bardet, years ago, got encouraging results from this practice and Albert Robin, who claims good results from pepsin medication, advises that the minimum strength should be a digestive power of 50 times its own weight of fibrin. More experience is needed in this medication with hydrochloric acid and pepsin under better conditions, the acid being combined with albumin and the pepsin being given in large doses of greater strength before its inefficiency can be established, for as yet we do not know it, and its condemnation would be premature.

#### RESPONSE BY DR. ALBERT ROBIN

Dr. Albert Robin wished to know whether pepsin deserves the disfavor and disuse into which it has fallen from a position of great popularity and ought it to be rehabilitated as a means of medication in diseases of the stomach. Since Corvisart introduced pepsin, its initial popularity expressed in the phrase, "with pepsin we can now do without a stomach," has given place to a perpetual decrease in its use—60 per cent. of its former sale.

One cause of this has been the supposition that, because pepsin and HCl are products of secretion, created simultaneously, variations in one meant proportionate variations in the other and in the same direction. Oppeler, A. Schüle, and Linsosier have recently affirmed that the secretion of pepsin goes on parallel with that of the other essential principles of the gastric juice. This theory has not been sustained by facts. In fevers HCl alone disappears. In tubercular cases, especially, a condition of hyperacidity is changed into one of suppression of the HCl function, while the peptic function continues after an attack of fever. Again, eminent histologists, like J. Renaut, of Lyon, think the secretion of HCl and pepsin does not take place in the same cell, perhaps not in the same gland. Finally, Hasche has found, by Grützner's method, that the variations of pepsin are more limited than those of HCl, and that liquid removed from the fasting stomach is



richer in ferment than the product of digestion of a test-meal. In hyperacidity there is no increase of pepsin, which there should be if the two secretions went on parallel. The use of pepsin has been neglected on this account.

Bourget in 1894 showed that in most diseased stomachs, even in cancer and inveterate chronic gastritis, pepsin is never absent, though HCl is; then, why give it artificially? In the few cases where pepsin has not been found, the technic of search was possibly at fault.

Heidenhain and Ebstein say that the stomach does not secrete pepsin, but propepsin, to be converted into pepsin by HCl and that the propepsin is always present. Then, in insufficiency of pepsin, HCl would be indicated and pepsin would be useless. According to Bourget, the pepsin would hinder rather than aid digestion. To this the speaker brought clinical objections. In infantile dyspepsia lactic acid gives different results according to whether or not we associate pepsin with it. So in dyspepsia with hyperacidity, it makes a great difference whether or not pepsin is given, the latter being all the more necessary because the activity of a relatively small quantity of pepsin is inhibited by the excess of the acid. In cases of achylia from abrasions of the mucous membrane, he had never obtained good results from giving HCl alone, but he had obtained them from giving it with pepsin.

In the healthy individual, taking three meals a day, a normal pepsinuria exists, at its highest before each meal and at its lowest two hours after each meal. The production of pepsin is therefore continuous, its disappearance from the urine occurring at the time when it is being used in the stomach. But, in certain pathological conditions there is diminution or suspension of this normal pepsinuria.

First, cases of paroxysmal gastric hypersthenia have pepsinuria at no time during the day, showing that here there is retardation or arrest of secretion of pepsin, yet these cases secrete large quantities of HCl.

Another class of hypersthenic cases presents a continuous pepsinuria as well before

as after meals, the pepsin being lost by urine and not utilized in the digestion, which is defective. Eight grains of pepsin given to such patients during a meal causes either diminished or increased pepsinuria—useful in the former event, harmful in the latter.

Substhenic cases show no change in pepsinuria on giving pepsin; the inference is that the pepsin given is utilized.

From these data, the precise indications for giving pepsin are as follows: 1. In infantile dyspepsias. 2. In hypersecretion of HCl, this being out of proportion to the pepsin and inhibiting its action. 3. In hypersecretion of HCl, with continuous pepsinuria, where giving pepsin after the meal does not increase pepsinuria during the digestive period. 4. In substhenic cases, where the pepsin given does not pass into the urine during the digestive period. 5. In chronic catarrh of the stomach and in cases where chemical examination of stomach contents shows absence or insufficiency of the pepsin.

For inexperienced clinicians, the author's rule is, *give pepsin in all cases of dyspepsia and withhold it only where it does no good or acts badly.*

It is better to use peptinogenous substances than to introduce pepsin directly into the stomach. Bouillon is one of the best, half a cupful before the meal. Peas, beans, gelatin, dextrin, toast and dry cheeses are good peptinogens. But starches, untoasted bread, glucoses, gummy preparations, and concentrated coffee are anti-peptinogens.

The strength of pepsin used ought to be at least 50; i. e., 1 part of pepsin digesting in an acid medium 50 of fibrin at 38° to 39° C. in 12 hours. Amylaceous pepsin ought to be done away with. Pepsin extracts should be given in liquid prescriptions, pepsin scales in powders. Elixirs are uncertain. Syrups of pepsin ferment. A powder should contain 1 or 2 Gm. (16 or 32 grn.) of pepsin, with about  $\frac{1}{10}$ th its weight of maltine or diastase, and should be taken in the middle of the meal. It is proper to associate pancreatin with pepsin and diastase in doses of 0.15 to 0.3 Gm. ( $2\frac{1}{2}$  to  $4\frac{1}{2}$

grn.) ; but in doing so the powders must be protected by a keratin coating from the acid of the stomach, which would neutralize the pancreatin. Once past the stomach the keratin is dissolved and the pancreatin utilized. The alcohol of elixirs does not harm them if they are properly prepared. Mixtures of pepsin and lactate of soda, pepsin and iron, etc., are bad, as they rob the pepsin of its activity. So also do creosote, sublimate, tannin, soluble salts of iron, atropine, phenols, bromides, iodides and quinines. Papaine may be substituted in cases where the HCl is absent or greatly diminished, in advanced stages of chronic gastritis, with atrophy of the mucous surface, and in hyperacidity of nervous origin. Dose, 3 to 8 grn. in solution, syrup or tablets at the beginning and at the end of the meal.

#### DISCUSSION

Pouchet pointed out the difficulty in administering enough HCl and pepsin at one time to produce a useful effect without being harmful, since in the organism the continuous and permanent secretion permitted the mucous membrane of the stomach to endure this great acidity. To adapt himself to such conditions a patient must continue for a long time to take HCl and pepsin in small quantities. Giving pepsin along with HCl permitted the use of a solution of stronger acidity than would be tolerated without it.

Albert Robin indorsed Pouchet's observation as to the value of giving pepsin often in small quantities. Germain See was in the habit of prescribing pepsin to be taken before, during, and after the meal. He himself prescribed it before and after.

Frémont stated that since 1892 he had held that organic acid fermentation was present eight times out of ten in cases with excess of HCl, and that it was rare in cases with deficiency of HCl. He was glad to find so distinguished an authority as Robin accepting it to-day. He would divide cases into chronic and acute infectious. For the latter, animal gastric juice gives surprising results, rapidly curtailing fever and other symptoms.

Linossier claimed he had not stated that

the secretion of pepsin and HCl went on parallel, but only in a common direction, since he had spoken of variations from simple to sextuple.

Huchard used HCl in small doses, and his results were satisfactory. He wished to know whether HCl acted by chemical substitution or catalytically by its mere presence? If the former, then large doses are necessary; but if the latter, small doses are preferable. He would give a wineglassful of 1:100 strength after each meal. Bitters might form one-tenth of the dilution.

Albert Robin said that the question asked by Huchard was a very important one. How does HCl act? If, as Linossier claims, it is given to replace the deficient normal acid, quantities large enough to be useful could not be borne by the stomach. Besides a considerable acidity does not prevent lactic and butyric fermentations. If, as Claude Bernard showed, soda before a meal increases HCl, then, inversely, HCl should be expected to diminish its own secretion.

Huchard recalled that Coutaret showed that any acid would produce the same results on digestion as HCl. He (Huchard) believed the acid acted by its mere presence. He preferred alkalies before meals to bitters and ordered 5 grn. each of sodium bicarbonate and neutral sodium phosphate a quarter of an hour before each meal.

Frémont had found that the secretions by the mucous membrane of the stomach of HCl and pepsin were not parallel. Some samples of gastric juice poor in HCl were rich in pepsin. His use of animal gastric juice had given remarkably good results, while giving 60 to 70 Gm. ( $15\frac{1}{2}$  to 18 dr.) of pepsin and 8 Gm. (2 dr.) of HCl a day for months.

Bardet returned to the question of the method of prescribing pepsin. The arguments had shown that normally large quantities of pepsin are used in digestion by the stomach. If so, it should be used in large doses. Then the amylaceous pepsin of the Codex was ridiculously inadequate; 300 Gm. (10 oz.) of pepsin, strength 20 (Codex), having a theoretical digestibility of 6,000, were needed to peptonize 50 or 60 Gm. (13 to  $15\frac{1}{2}$  dr.) of albumin, the equivalent of

a fair repast. To supplement an insufficient gastric function, large doses are needed; the greater the quantity of ferment the greater will be the facility and rapidity of digestion. In 1886 he advised giving 2 to 4 Gm. ( $\frac{1}{2}$  to 1 dr.) of pepsin of strength 300 or 400—a range of 60 to 80 Gm. of pepsin of the Codex. He has found that phosphoric acid in hypersthenic cases remarkably inhibits the secretion of HCl and especially prevents fermentations from secondary acids in chronic cases where there is no pain, but not in cases with great crises, thus corroborating the findings of Mathieu with HCl and lactic acid.

Albert Robin agreed with Huchard in using small doses of any acid producing inhibition. In England minim doses of nitrohydrochloric acid were used. Coutaret, one of the best authorities on stomach pathology, well understood the utility of acids in prescribing the following:

Pure HCl.....	2.6 Gm.	(70 min.)
Pure HNO <sub>3</sub> .....	0.8 "	(25 min.)
Alcohol (90%).....	18.0 "	(4½ dr.)
Water.....	150.0 "	(4½ oz.)
Syrup Lemon.....	100.0 "	(3½ oz.)
Teaspoonful in half a glass of water after meals.		

This is indicated in catarrh of the stomach and diarrhea.

Linossier thinks with Robin and Frémont that HCl will not prevent fermentations, but will determine their character.

Vigier, who has written the article of the Codex on pepsin for fifteen years, justifies it by claiming there was anarchy on the subject at the time he first wrote it and no proper analyses had been made as to the strength of the various pepsins produced. He himself had experimented to show that the elixirs and wines of pepsin had a real medicinal value, because it had been claimed alcohol entirely destroyed pepsin or at least took away all its properties. No pepsins then in use exceeded the strength of 20. The Codex directs to use 1 Gm. of pepsin per tablespoonful, stating that it digests 10 Gm. of fibrin, because it was believed alcohol diminished the active value of the ferment by a half. Poor results from the use of pepsins were often due to errors on the part of physicians prescribing

them, as, when powders were given, mixing pepsin with benzonaphthol or sodium bicarbonate, or when pepsin was given at the beginning instead of in the middle of a meal. Phosphoric acid can well replace HCl for the digestion of albuminoids.

Mathieu claims indirect medication will excite secretion of HCl, much as massage does, and as alkalies do. Thus he would recommend weak doses of the acid given at hour intervals after a meal, say 3 drops of acid added to a bitter uncture an hour after the meal, and this repeated an hour later. With this use of it the appetite is whetted. Pauloff showed that small doses of HCl with peptones excited motor as well as secretory activity of the stomach. The large dosage recommended by the former speakers is in accord with Frémont's practice, but the whole practice is still unsettled. In Frémont's cases there were some neurasthenics whom gavage rapidly helps—in giving them a strongly active gastric juice he was really employing a sort of curative gavage.

Twenty years ago Catillon found that by adding a good to a bad pepsin the digestive activity of the latter was heightened *in vitro*. He then advised the larger doses of pepsin and HCl, since one could not be increased without the other; but HCl ought to be guardedly increased. Pepsin is prescribed to small eaters who are dyspeptics, large eaters do not need it. A beefsteak and an egg require over 2 dr. of HCl for their peptonization, but this dose is much too large to be prescribed. The question seems to be badly stated. A gram of pepsin with a digestive strength of 20, digests 20 Gm. of fibrin, but it liquefies 200 Gm. The digestion is continued in the intestine under the influence of the pancreatic juice. Normally, the stomach's work is merely to effect this liquefaction, therefore no need of administering big doses of pepsin to obtain the conditions of normal digestion. Outside of France solution and peptonization have been confounded, causing much discussion among chemists. In France the strength named refers to peptonizing power, and therefore foreign pepsins are found much weaker than the manufacturers claim, be-



cause they gauge their goods by solution and not by peptonization.

Linossier agreed with Catillon that the rôle of pepsin in the stomach was to liquefy the albuminoids, but for that very reason large doses should be given. Artificial digestion gives absolutely no notion of what goes on in nature. In the stomach large quantities of pepsin were necessary because the constant opening of the pylorus allowed the gastric juice to carry with it into the duodenum all the liquefied portions. Otherwise the digestion would go on as *in vitro*. Substitutive hydrochloric and pepsin medication, it is known to-day, the writer concludes, is effective only in large doses. Small doses when effective are so by virtue of a different mechanism.

### Croton Oil

CROTON OIL for ordinary use as a cathartic seems rather odd treatment in the estimation of most medical men, and yet this is what Dr. H. K. Bond,<sup>1</sup> of Baltimore, advocates after giving it a careful trial in his practice. He states that the prejudice against its use is chiefly due to the fact that, whereas the proper dose in which to give it is from one-eighth to one-sixth of a drop, the profession has been in the habit of administering it in drop doses. In the smaller dose, he says, its action is gently purgative without violent or even disagreeable results.

An experience is mentioned in which one of his patients, a man of delicate build, asked specially that he might be permitted to repeat pills which contained this dose because they were the gentlest and most agreeable purgative he had ever taken. Doses larger than one-sixth drop must be given with caution. In cases of great heart weakness or actual inflammation of the intestinal tract, the author considers croton oil contraindicated. He does not see why the profession should hesitate to use this remedy, which has extremely few if any deaths credited to it, when it so freely uses morphine, which has many.

Regarding the alleged uncertainty in the

action of this oil, the author states that inquiry among druggists has brought out a general denial of the charge. If it becomes harsher with age, is adulterated with other fixed oils or varies in quality with its source, the remedy for such variation is in the hands of pharmacists and manufacturers and can readily be corrected. In cases of individual idiosyncrasy, all that can be done here, as with all other remedies in like condition, is to adapt it to the requirements of the patient. Doses of from  $\frac{1}{2}$  to 1 drop will in most persons act with violence, causing great distress, with rushing, watery stools, and dangerously depressing the heart. Where, however, such doses are needed, as in temporary inertness of the bowel, with obstinate constipation, they can be borne without discomfort and with distinct benefit. Unless the emergency is very urgent, it is best, always, to use the smaller doses, otherwise the temperature of the patient may be forced below the normal, as happened to one of his patients when a large dose was administered. He usually gave the oil in bread pill, being careful in subdivision, but thought that manna might make a better combination. Capsules and hard pills might fail to be dissolved. To dissolve croton oil in other oils, the author believes lessens its effects by making it less likely to irritate the intestinal walls and establish peristalsis. It may, however, be used to fortify castor oil, as its aperient powers do not wholly depend on its irritating properties. The putting of the undiluted oil upon the tongue should be avoided if possible, as considerable inflammation of the mouth has followed this act.

Croton oil in moderate doses produces two or three small, usually dark-brown, stools, without severe pain, often without any pain at all. These stools have in the author's experience always been soft (fluid, but not watery); and as they seem always free from lumps even when other purgatives bring lumps of impacted feces, he supposes that the oil must in some peculiar way excite the outflow of the intestinal glands. In this dosage, he thinks it never brings away great quantities of feces in enormous stools, as do castor oil and cer-

<sup>1</sup>*Therap. Gazette*, XXIV, p. 151.

tain other domestic remedies. To illustrate by a rather crude figure, croton oil is the limited express, not the freight train. Its actions should therefore be followed by other less irritating purgatives, which bring abundant stools, until cleansing is completed.

The special superiority of croton oil over other purges is seen in the several conditions. Where the stomach (not inflamed, for croton oil is contraindicated in all intestinal inflammation) is excessively irritable and everything swallowed is at once returned, the fresh pill of croton oil and bread crumb has in his experience, if swallowed with the least possible amount of water, invariably stayed down. He has never known a patient to vomit it as a pill, but he has known colocynth and other ingredients combined in a druggist's pill to come up after a time, while the croton oil set free would either stay in the stomach or come up only as far as the upper gullet, as was shown by the acrid, burning sensation which it produced. The importance of such a property or action in a purgative needs only to be stated to be appreciated, especially when there is added the advantage of minuteness of dose.

Again, in those so-called "bilious" states where ingesta simply collect in a non-absorbing stomach and are from time to time vomited, mixed with a great quantity of bitter liquid, the croton oil is of great value. Though other medicines are evidently unabsorbed (simply mixing with the bile-pool until the next vomit), the croton oil, if given alone in a soft, friable pill, remains and, he supposes, by the irritation of its oily droplets as they float undissolved upon the walls of the stomach and duodenum, excites a downward peristalsis which forces the bowels and thus relieves the stomach of its load. He says he has repeatedly seen this result of croton oil administration.

It is perhaps in cases of acute blood pollution by decomposing fecal masses which the bowels refuse to pass on and out that the most beneficial results of croton oil are obtained. The condition of "acute stercoræmia" is at the bottom of many clinical conditions which would not at first view

seem to bear any relation to it. The patient and the nurse may declare that satisfactory evacuations occur either with or without the usual simpler aperients. More careful observation, however, shows either that the stools are still hard; or that they are insufficient to contain the amount of fecal matter suspected to be in the large intestine; or that they are abnormally foul; or that while soft they contain hard lumps. A feeling of the patient that he is still unpurged; a spastic colon, cord-like in its hardness; dulness on percussion over it; a tongue that is large, flabby, bluish, and dirty; shifting pains and nervous symptoms (even convulsions), which are not assignable to any special category and are associated with unaccountable mental depression; local pain in any region simulating inflammation, yet lacking some symptoms of the latter and not appreciably affected for any length of time by considerable doses of opium, even hypodermically—these, with other symptoms of obscure causation, point very strongly to stercoræmia.

In the milder cases of this sort croton oil will somehow initiate the softening and expulsion of the fecal masses, perhaps by some peculiar power of starting glandular action and peristalsis in adjacent uncovered parts, it being a local irritant as well as a systemic purgative. It will thus open the way into the masses for the action of other aperient drugs. In the severer cases the dose of croton oil required may be one which the physician fears to throw directly into an already irritated bowel; so after quieting the stomach and getting the confidence of the patient by small doses of croton oil, he should administer several ounces of a bland oil such as sweet oil, and then by a large dose of half a drop or a drop of croton oil start convalescence without danger.

By use of croton oil the author claims to have relieved severe asthma, sick headaches, impending epileptiform attacks, and other troubles that were indirectly traceable to poisonous impacted feces. He has always, however, feared to use this remedy in the treatment of young children.

# PROGRESS IN MATERIA MEDICA

**Codeine** in the severe, depressive forms of *neurasthenia* was the subject of a comprehensive article by Dr. Otto Dornblüth.<sup>1</sup> The author states that by means of this remedy the nerves were permanently soothed and restored in a short time. No disadvantage or danger accompanies the treatment, and the writer's continued experience strengthens the impression that the action is not a narcotic one, but one that favors the restoration of the nervous function. In cases where excessive work has led to severe exhaustion, accompanied by continuous fatigue and sleepiness, the author claims that the first few doses of codeine increase the patient's ability to work. The requirement necessary to success is, above all, a proper plan of procedure. Where codeine alone, without the general requirements, is ordered, only ephemeral results will be obtained. It is equally important that the doses at the beginning be small, about 0.01 Gm. ( $\frac{1}{16}$  grn.) thrice daily, and be gradually increased up to tenfold, then gradually reduced again.

**Formaldehyde** and **Boric Acid** have been experimentally used by Dr. Samuel Rideal,<sup>2</sup> of London, England, in milk fed to kittens in amounts more than necessary to preserve the milk from decomposition, and after three weeks' trial he concludes that "making allowance for the difference between different animals and the irregularities always noticed in animal experiments, the natural increase cannot be said to be interfered with. All were active and healthy at the conclusion of the experiments."

The author calls attention to some experiments, lately reported in the *Lancet* as having been tried in Liverpool, in which the conclusion was drawn that these substances hindered the growth of young kittens. Dr. Rideal points out that the Liverpool experimenter obtained by his own showing very irregular and contradictory results, and that this was perhaps due to the fact that cow's milk without preservatives of any kind is a most unsuitable food for very young kittens, as it contains only about 0.5 per cent. of albumin, while cat's milk contains 6 per cent. Dr. Rideal found, experimentally, that kittens three weeks old, when fed cow's milk free from every kind of preservative, did not thrive, six dying under

such feeding. The bad results of the Liverpool experimenter, therefore, he concludes, were at least partly due to the milk itself and to the too tender age of the kittens.

**Eunatrol** is defined as a highly purified sodium oleate, an excellent cholagogue, and the dose commonly employed is 15 grn. twice a day. A. G. Cipriani,<sup>1</sup> of S. Andrea Frius, Sardinia, reports two cases of gall-stone in which this drug was given with marked relief to the symptoms. Not only did it cause a relief of the hepatic colic, with quick removal of the calculi from the bile-ducts, but it re-established a flow of bile. In both cases there had been frequent hepatic disturbance, and the prompt relief obtained on the administration of the drug leaves no doubt in the writer's mind that it has a specific effect in favoring the excretion of the calculi. The explanation which the writer gives is that, when a gall-stone with a rough, uneven surface becomes impacted in the gall-passages, it excites a tonic muscular spasm which, instead of facilitating the passage of the stone, retains it in its position. This leads to extreme pain; a catarrhal condition of the ducts is excited that may ultimately lead to ulceration and suppuration. The retention is frequently at the duodenal orifice of the duct. When this occurs, jaundice is a frequent accompaniment of the hepatic colic. The action of the oleate of sodium is due to the fact that the intestinal juices turn it into a greasy fluid, which spreads over the surfaces of the stomach and duodenum. As soon as it comes into contact with the mucous membrane of the stomach, the spasms, which form the principal element of the crisis, cease through a reflex action. It favors the passage of the gall-stone, and in addition augments the flow of bile, and so favors its expulsion by a direct increase of the pressure in the bile-ducts.

**Calcium Peroxide** ( $\text{CaO}_2 + 4\text{H}_2\text{O}$ ) forms a yellow alkaline powder which is very slightly soluble in water, the solution having an alkaline reaction and a somewhat burning, astringent taste. It must be kept in well-stoppered containers, because on contact with moisture it spoils. Calcium peroxide is decomposed by water into calcium hydrate and oxygen. I. Reszkowski<sup>2</sup>

<sup>1</sup>*Münch. med. Woch.*, XLVII, p. 74.

<sup>2</sup>*Lancet*, No. 3987, p. 229.

<sup>1</sup>*Med. Bulletin*, XXII, p. 101.

<sup>2</sup>*E. Merck's Bericht*, 1900.



has tested it clinically, and found it to possess a decidedly good action in acid dyspepsia and summer diarrhea occurring in children. Calcium peroxide also furnishes an excellent substitute for milk of lime, but acts besides as a powerful antiseptic because of the nascent oxygen liberated in the intestines. The daily dose ranges from 0.2 to 0.6 Gm. (3 to 10 grn.), according to the age of the child; best given in milk. It is advisable to dispense the preparation in parchment papers preserved in well-closed glass-stoppered bottles, in order to prevent decomposition.

**Sodium Sulphuroso-benzoate** is described as a white powder, soluble in water, and was found by Dr. F. Heckel<sup>1</sup> to have a decided antiseptic power toward various microbes. It is said to be non-toxic to the human organism even in large doses. For medical practice the remedy is believed to be a convenient antiseptic, with decided advantages over the mercury salts, because of its non-toxic and non-irritant effects, although it is not so effective an antiseptic.

**Iodoformogen** has been used in surgery by Prof. Constantin D. Sévereanu,<sup>2</sup> of the surgical and syphilitic clinic of the University of Bucharest. He has used it in his practice for two years, and has found it to have many advantages over iodoform, among which are its odorlessness, its non-toxicity in the quantities ordinarily employed, and a more energetic specific action. Applied in the form of fine powder to the surface of wounds, it forms with the secretions a varnish-like agglutination, which favors the formation of new substance. In this respect the author considers iodoformogen to be far superior to iodoform, as the latter frequently causes erythema and an inflammatory swelling of the neighboring tissues, whereas iodoformogen rapidly forms a hard, solid crust under which granulation proceeds. The cicatrix left by it is, however, always retracted and less soft. There are never any toxic phenomena or inflammation of the contiguous tissues.

Employed in the form of powder, the author considers iodoformogen to be the most active agent we possess for cicatrizing and suppressing exuberant granulations in wounds having a keloid tendency, in chancres, etc. Although iodoform is certainly one of the best agents for causing and maintaining a mild irritation favorable to granulation, yet its toxicity and

odor effect in certain persons so great an irritation as to preclude its use. Iodoformogen is far preferable, hence, as its stimulant action is more regular and limited, while the granulations are more exuberant than with iodoform, and the course of the disease is more rapid.

**Dionin** has been employed by Dr. Th. Janisch,<sup>1</sup> of the Polyclinic of the University of Halle o. S., with a view of investigating its action in *diseases of the respiratory organs*, particularly when severe cough irritation and pain existed. The remedy was tried in a very great number of cases, and in 36 of them accurate records were kept of the comparative action of dionin, codeine, and heroin.

The first group of patients treated comprised cases of pulmonary phthisis, a few being complicated with laryngeal tuberculosis. In these cases the dionin was given to adults in doses of 0.015 Gm. ( $\frac{1}{4}$  grn.) in pill form, and to children in doses of a teaspoonful of a 1:100 solution, representing 0.004 Gm. ( $\frac{1}{8}$  grn.). The results were excellent in all cases. The second group comprised cases of chronic bronchitis and pulmonary emphysema, and here, too, good results were obtained.

The excellence of the effects of dionin in chronic diseases of the respiratory organs next led to its employment in acute cases with cough irritation. The results are sufficiently good to warrant its more extended employment, even though its sedative action is not so generally prompt as in the chronic diseases. The clinical observations lead the author to the conviction that very satisfactory results are to be expected in cases of phthisis.

The hypnotic action was usually very prompt, even in cases wherein small doses of morphine had been given. In cases where the disease was far advanced, and particularly in those in which the larynx was affected and morphine had been given in large doses, dionin was generally ineffective, and even in daily doses of 0.06 to 0.075 Gm. (1 to 1 $\frac{1}{4}$  grn.), sleep was but rarely obtained. In general, patients never complained of dizziness; nor was nausea or vomiting ever observed. In one case existing diarrhea was beneficially influenced, whereas on the other hand constipation was never caused. The more rest was obtained at night, the greater was the quantity of accumulated sputum, hence many patients reported an increase in expectoration. The night-sweats were generally satisfactorily influenced, being either entirely suspended

<sup>1</sup>Pract. Drug., VII, p. 238.

<sup>2</sup>Le Scalpel, LIII, p. 250.

<sup>1</sup>Münch. med. Woch., XLVI, p. 1729.

or much less profuse. The pectoral pains were immediately relieved in mild cases; when very severe they were diminished. The action on the cough-irritation was remarkable. In recent pulmonary or laryngeal phthisis it was perfectly reliable; in advanced cases of pulmonary phthisis, with or without laryngeal complication, the action fell off after three or four weeks' use of the dionin. In this class of cases morphine cannot be replaced. In one series of cases among phthisical subjects dionin and codeine were given in similar doses without the patients' knowledge. In some cases equal sedative and hypnotic effects were obtained with both codeine and dionin, but in other cases the latter was decidedly preferred. The hypnotic effect of the dionin appeared also to be more persistent than that of codeine.

Very good results were also observed in chronic bronchitis, in emphysema, and in asthma. The previously frequent attacks of asthma were suspended for three to four weeks at a time, the breathing was easier, and the "chest lighter." It would appear that in these affections morphine can be altogether spared.

It had been repeatedly observed in certain patients that morphine rendered expectoration more difficult, whereas dionin facilitated it, hence the author carried out a series of tests on himself, which proved that the respiratory volume was reduced by morphine, but very considerably increased by dionin—a fact of considerable therapeutic importance. Further, it was found that dionin very favorably influenced expectoration. So far as the exhibition of dionin is concerned, the author states that it is best given in doses like those of codeine, and preferably as in the following formulas:

Dionin ..... 1 Gm. (15 grn.)

Syrup ..... 200 Gm. (5 fl. oz.)

Dose: Teaspoonful in the evening.

Dionin ..... 0.3 Gm. (5 grn.)

Extract and Pow- } sufficient to make 30  
dered Licorice. } pills

Dose: One pill three to four times daily; or, 2 to 4 pills in the evening.

For children the following is suitable:

Dionin ..... 0.2 Gm. (3 grn.)

Syrup ..... 200 Gm. (5 fl. oz.)

Dose: Teaspoonful in the evening; or, half a teaspoonful two to three times daily.

**Orthoform** is reported by Bardet<sup>1</sup> to be especially applicable as a local anesthetic to excoriated and ulcerated surfaces, on account of its marked insolubility, which results in a very gradual absorption of the drug, and so makes its action much more

lasting than that of cocaine, nirvanin, etc. Where there is no superficial lesion, as, for example, in some cases of painful nipples in nursing women, the author advises the use of the following application:

Orthoform ..... 1 dr.

Ether ..... sufficient to dissolve

Expressed Oil Almond ..... 4 fl. dr.

the orthoform being in this way enabled to penetrate beneath the epidermal surface, and then through the evaporation of the solvent being left behind in crystalline form. In view of the somewhat remote possibility noted by some writers of producing symptoms of poisoning in infants whose nurses are treated in this way, the author advises washing the nipple with 20 per cent. alcohol before each nursing.

An interesting observation is that when combined with orthoform, iodoform loses a large part of its disagreeable odor; though difficult to formulate in figures, it may be said that an equal amount of orthoform deprives the iodoform of three-quarters of its odor.

The combination gave especially good results in relieving the pain of ulcerated hemorrhoids, which are also advantageously treated by applying high up in the rectum an ointment consisting of:

Zinc Oxide ..... 5 dr.

Expressed Oil Almond ..... 5 fl. dr.

Simple Cerate ..... 5 dr.

Balsam Peru ..... 10 drops

Orthoform ..... 2½ dr.

**Paraldehyde with Chloroform** has been tried as an ideal combination for *anesthesia*, by Dr. Cosimo Noto,<sup>1</sup> of New Orleans. After recounting the history of the successive efforts at reaching a perfect means of anesthetizing patients, and giving his own various experiments with animals, he concludes that the association of paraldehyde with chloroform, owing to its effects, appears to be by far superior to all other methods of mixed anesthesia proposed by experimenters up to this time. Administering paraldehyde before the inhalation of chloroform, first of all, he removes from the patients who are rebellious or fretful that consciousness of being forced to undergo the chloroform narcosis, and this, in certain instances, will prove a great practical advantage. The period of chloroform excitement, which often is much protracted and reaches great intensity, is completely suppressed. That profuse secretion of saliva, which is so disgusting to the patient and to the operator, and which sometimes becomes even dangerous, is done away with; vomiting is not pro-

<sup>1</sup>Revue de Thérap., LXVII, No. 4.

<sup>1</sup>New Orleans Med. and Surg. Jour., LII, p. 495



duced, at least judging from the observations thus far made.

By previously administering paraldehyde, continues the author, the chloroform anesthesia is obtained in a very short time and with a very small dose of chloroform; the sleep proceeds soundly, respiration continues calmly, the heart works on with perfect regularity, and the blood-pressure, even in the deepest narcosis, is strong enough. Another fact is that with paraldehyde the sleep is much prolonged, even after the cessation of anesthesia; the patient awakes some little time after the operation is over, already revived, and without suffering the effects of trauma.

The author hopes that by having recourse to the association of paraldehyde with chloroform, it may be made possible to practice anesthesia without any danger even to those patients who are affected with heart-diseases and for whom the plain chloroform narcosis is absolutely contraindicated.

**Tachiaë Guayanensis (Caferana)** has been recently studied by Th. Peckoldt,<sup>1</sup> who has found it to contain a crystalline substance, "caferanin," and an amorphous bitter principle, "tachinin." To which of these substances the antipyretic action of the drug is due has not yet been determined. At present the entire root is used, a tincture (1:5), an alcohol extract, and a decoction (1:50) being official in Brazil. Very good results have been obtained by Dr. Peckoldt, Jr., in pediatrics, particularly with the tincture, which he has prescribed in ague, as follows:

Tinct. Caferana..... 16 to 24 grn.

Syrup Coffee..... 2 fl. oz.

Dose: Teaspoonful.

**Ichthyol** in relation to its absorbability by the skin has been the subject of an extensive and carefully conducted series of experiments by Drs. Cornelius Beck and Béla von Fenyvessy,<sup>2</sup> of the Pharmacological Institute of the Budapest University. The experiments were carried out with dogs, the nitrogen and sulphur in the urine being estimated daily. The results obtained by the authors are stated as follows:

1. Ichthyol is absorbed by the normal skin of the dog; an evidence of the absorption is afforded by the increase of sulphur in the urine. The increase is effected by oxidized as well as unoxidized sulphur, and by each to equal extent.

2. Whether the metabolism resulting from the cutaneous application of ichthyol is influenced in the same sense that Zuelzer and Helmers have found to follow the internal administration of ichthyol in human beings, the authors could not decide.

3. From a physiological and therapeutic view the investigations have led to the important result that the skin appears to be penetrable to such substances as are readily soluble in water and in fat; whereby these substances are enabled not only to act upon the deeper cutaneous layers, but are also able to exert effects in distant parts of the body.

**Mercurio-iodo-hemol** has been used by Dr. Leo Kohan,<sup>1</sup> of Kischinew, in twenty cases of *syphilis* of all varieties, occurring in the syphilitic section of the "Kischinewer Semski-Gouvernement-Spital," conducted by Dr. N. Doroschewsky. The remedy was exhibited in the form of pills, each containing 0.1 Gm. (1½ grn.), and of which 4 daily were given as the initial dose, the number being rapidly increased to 9 or 12 daily, as tolerance was established. During the treatment the patients used potassium chlorate as a mouth-wash and had their gums daily painted with tincture of iodine. From time to time the urine was examined and the quantity of mercury eliminated estimated.

From the clinical histories of a number of the cases, it was shown that mercury could be detected in the urine after the ingestion of only 20 pills, and the elimination be increased, the maximum being reached when about 150 pills had been taken. This amounted to 0.001 to 0.002 Gm. per 500 Cc. of urine. So far as the clinical results obtained went, these were excellent in the cases of secondary syphilis. In all cases the various syphilitic eruptions on the skin and mucosa, even the most severe, such as large, confluent, weeping papules, rupia, etc., disappeared in a comparatively short time without leaving a trace. The results were not so prompt in the case of initial sclerosa. The ulcers, it is true, were healed in all cases without resort to local treatment, and a number of phimoses, excepting those which required incision, were finally relieved, yet the treatment required a comparatively long time, and several patients were discharged in whose cases a slight induration took place at the ulcerated part. In three cases of gummatous syphilis the excellent action of the mercurio-iodo-hemol was even more remarkable than in those of the secondary form, the ulcerated gumma rapidly disappearing and leaving but a slight scar.

<sup>1</sup>E. Merck's Bericht, 1900.

<sup>2</sup>Archiv. internat. de Pharmacodyn. et de Thérap., VI, Nos. 1 and 2, 1899.

<sup>1</sup>Deut. Prax., 1899, No. 16, 17, and 18.



So far as the by-effects are concerned, mercurio-iodo-hemol is not entirely free from them, like all other mercurials; yet those that follow the ingestion of this preparation are so few and slight, that it may be exhibited continuously for long periods.

Of the 20 cases treated, 7 were entirely free from any by-effects, even the slightest. In 9 cases, slight gastric disturbances were noted. In some cases, a sense of pressure over the epigastrium was complained of; a few developed during the first few days' treatment several diarrheal movements, which were soon stopped, with suspension of the remedy. In no case, however, were there any severe disturbances of the digestive tract, sanguineous dejections, or mercurial dysentery, so frequently observed when mercurials are given. The by-effects on the buccal mucosa and gums were remarkably slight. In no case was there any noticeable loosening of the gingival tissue, nor did the latter ever exhibit any purulent, malodorous secretion.

From all the results obtained, the conclusion is reached that mercurio-iodo-hemol is destined to assume an important place among the mercurials intended for internal use. The remedy appears to be rapidly absorbed, and possesses, besides its undoubted mercurial value, a decided tonic action as well, thus rendering it of particular value in the treatment of syphilis, and especially in the tertiary stage, which so often leads to cachectic conditions.

**Duotal, Pyramidon, and Heroin Hydrochlorate** have been investigated by Pollak<sup>1</sup> as remedial agents in the treatment of *phthisis*, and his conclusions may be summed up as follows:

Duotal (creosote carbonate) was given to thirty-two patients whose anorexia had baffled all attempts at increasing their body-weight. Commencing with a dose of  $7\frac{1}{2}$  grn. once a day after the principal meal, the amount was gradually increased until 60 to 75 grn. daily were being taken. In five cases the medication was stopped, as the appetite of the patients was not improved, but in all the others there was a very pronounced increase as well as a gain in weight. The cough, expectoration, dyspnea, and other symptoms, however, were not affected by the drug, nor was any change produced in the physical signs. As a gastric tonic and stimulant to the appetite, duotal is to be recommended both in institutional and private practice.

Pyramidon (dimethylamido-antipyrine) has the advantage over other antipyretics

of allied chemical constitution of not exerting any damaging effect on the heart, and in the healthy does not affect the temperature or have any action other than to cause a slight flushing of the face and secretion of sweat. In a few instances it was found without effect in the fever of consumptives, but in most cases the temperatures were perfectly controlled without the appearance of any untoward symptoms. Its effect, however, is symptomatic rather than curative; usually omission of the daily dose is immediately followed by a febrile rise, but in a few cases the results seemed to be permanent.

Heroin hydrochlorate,  $\frac{1}{12}$  grn., given as a regular dose each evening at bedtime, is sufficient to insure a quiet night, uninterrupted by the usually troublesome cough. In bronchial asthma no effect was produced, but the irritative cough of all the other forms was controlled. Doses larger than  $\frac{1}{6}$  grn. are apt to cause toxic symptoms, such as rapid feeble pulse, contracted pupils, headache, nausea, and vomiting; but when  $\frac{1}{12}$  grn. is not exceeded not even constipation is produced.

**Camphorated Oil** administered subcutaneously has given Alexander<sup>1</sup> wonderful results in the treatment of *phthisis*. He first employed this remedy in 1889, when by its use he was able to restore to comparative health a stone-mason who at the time treatment was begun was apparently in the very last stages of the disease. Since then he has tested the method exhaustively, both in dispensary and private practice, with unfailingly encouraging results. Other observers, notably Huchard, Miller and Kobert have reported favorably on this form of medication and recommend its use.

In its action the camphor possesses all the cardiac stimulating power of alcohol, but differs from it in producing an actual strengthening of the cardiac muscle instead of merely spurring it up temporarily. When given internally camphor speedily produces gastric disturbances, causes an irritative cough, and increases the tendency to sweat, but when used hypodermatically none of these disadvantages are apparent. On the contrary, the appetite is stimulated to a marked degree, the excessive perspiration is checked, even minute doses are strongly antipyretic, the sputum is diminished in amount, and the sedative properties of camphor make morphine and all hypnotics unnecessary. Furthermore, the exaggerated reflex excitability is abrogated and the cough reduced in frequency and intensity.

<sup>1</sup>Wien. klin. Woch., XIII, No. 3.

<sup>1</sup>Munch. med. Woch., XLVII, No. 9.

It is especially among the poorer classes that this method of treatment is to be most recommended. The fate of the needy in the last stages of the disease is unspeakably dreadful, but by the camphor injections they always attain the same amount of alleviation of their symptoms as wealthier patients experience by residence in sanatoria and especially suitable climates.

After prolonged experimentation the author submits the following as the most satisfactory method of administration: Patients manifesting a febrile movement are to receive daily  $\frac{1}{4}$  to  $\frac{1}{2}$  grn. of camphor at a single dose; if very asthenic,  $\frac{1}{2}$  grn.; the treatment to be continued uninterruptedly for weeks or months. Those without temperature elevation are either subjected to the same régime, or receive  $\frac{1}{4}$  grn. daily for four days, followed by a break of not more than eight days, when the injections are again repeated.

**Methyl-propyl-carbinol Urethane** has been introduced by Dr. Dreser<sup>1</sup> as a *hypnotic*. It is said to have far greater soporific power than ethyl urethane or chloral hydrate, doses of 0.5 to 1 Gm. (8-15 grn.), taken in water or in diluted alcohol, sufficing to produce sleep, during which the temperature falls about 1° C. (1.8° F.), the respiration and blood-pressure are slightly reduced, while the urinary secretion is decidedly increased. Clinical reports are yet wanting.

**Nosophen, Antinosine, and Eudoxine** are three local *antiseptics* recommended by Dr. W. E. Frazer<sup>2</sup> for dressing wounds, ulcers, etc. After nearly four years' trial of these articles in acute and chronic cases, he is highly satisfied with the results he has obtained. In contused scalp wounds, which at one time it was difficult to heal without suppuration, he now obtains excellent results, entirely free from suppuration. His only precautions are to cleanse with a 2- or 3-per-cent. watery solution of antinosine and dust freely with nosophen, coapting the wound as nearly as conditions will permit.

In chronic varicose ulcers he finds that the healing process goes on steadily and certainly by the use of these remedies and the support of a flannel bandage. The causes of delay in the healing he takes to be the presence of micro-organisms, and these he holds are destroyed by applying these antiseptics freely. In severe burns he has had good results, attributed to the destruction and exclusion of living germs. In scalds and burns of children the remedies are most

satisfactory. He directs that the blebs be opened, if any are present, the powder applied liberally, and then covered with cotton. In most cases one dressing should suffice. If a large amount of the powder is needed, boric acid answers admirably as a dilutant.

**Antifebrin and Phenacetin** in relation to their action on the composition of the blood have been made the subject of an elaborate series of investigations by A. Denning.<sup>1</sup> This observer, by means of spectrophotometric methods, has been able to show that for every kilo of body-weight in a dog, antifebrin in the amount of 10 grn. induced within thirty minutes the production of methemoglobin in the blood. The maximum production of methemoglobin was obtained within four to six hours. He also shows the interesting fact that a dog could live with from 60 to 62 per cent. of oxidized hemoglobin, although this amount brought about abolition of the knee-jerks, irregular respiration, and irregularity of the heart action, with marked cyanosis. Sixty-six per cent. of methemoglobin produced death. Similar toxic results were obtained with phenacetin.

**Methylene Blue** (medicinal), administered internally, Dr. Joseph Alan O'Neil,<sup>2</sup> of New York, claims, will cure *gonorrhea* in from four to seven days. He asserts that the remedy is especially fatal to the diplococcus, and that the pyogenic bacteria that make this disease a mixed infection succumb very promptly to this germicide. The author states that the methylene blue is best given in gelatin capsules in 1-grn. doses three or four times a day. After the fourth day the dose may be reduced to twice a day. Given alone it sometimes causes irritation of the neck of the bladder, but when combined with oil of nutmeg there is no trouble of this kind. Oil of sandalwood is a desirable adjuvant because of its diuretic action and also on account of its sedative effect upon inflamed mucous membrane.

For several years methylene blue has been used in solutions varying in strength from 1:1000 to 1:100 for direct irrigation of the urethra in acute gonorrhea. But conservative practitioners are so opposed to this method of treatment, and the staining-properties of the methylene blue are so pronounced, that for use in this way it has not become very popular. Recent observations show that, when given internally, it reappears unchanged in the urine within two hours. This, of course, simplifies the prob-

<sup>1</sup>E. Merck's *Bericht*, 1900.

<sup>2</sup>*Med. Summary*, XXI, p. 371.

<sup>1</sup>*Deut. Arch. f. klin. Med.*, LXX, pts. 5 and 6.

<sup>2</sup>*Med. Record*, LVII, p. 493.



lem of cleanly and complete urethral irrigation. By giving four 1-grn. doses of methylene blue daily there is always enough of it in the urine to kill all the germs it comes in contact with. This is irrigation "from above," irrigation not of the urethra alone, but of the entire urinary tract. By this method of irrigation there is no danger of forcing the infection into remote recesses of the genito-urinary organs. The urine impregnated with the methylene blue not only kills the germ, but also carries away its corpse.

Continuing, the author says that he has seen troublesome gastric symptoms follow the administration of the ordinary methylene blue of the shops, but with the following formula he has had uniformly satisfactory results:

Methylene Blue (*Medicinal*)... 1 grn.  
Oil Nutmeg..... 1 drop  
Oil Sandal..... 2 drops

The author reports cases in which he has had decidedly good results from methylene blue, and quotes Dr. Austin Flint's commendation of the remedy and his suggestion that it be used as a preventive against the disease after impure intercourse.

**Sodium Sulphate** has been administered to 453 cases of *acute dysentery* by Major W. J. Buchanan,<sup>1</sup> superintendent of the Central Prison, Bhagalpur, Bengal, India, and all but five recovered. In the vast majority of the cases the stay in the hospital was from eight to twelve days. He had previously treated 102 cases with magnesium sulphate, and lost only one case. The remedy acted admirably, promptly, and efficiently. The following mixture he used in the majority of his cases and found it satisfactory:

Sodium Sulphate ..... 1 fl. oz.  
Fennel Water..... to make 4 fl. oz.

Of this mixture, 4 dr. is given three or four times a day. Purgation should be free but gentle, and when bright yellow stools without a trace of blood or mucus are passed, then the drug should be stopped, but resumed at once if blood or mucus reappears in the stools. It is usually found that after five or six stools all blood and mucus have disappeared from the stools, but in many cases they reappear in a day or so; in such cases sodium sulphate must again be given.

The highly yellow "bilious" stool is characteristic of this drug.

For chronic and relapsing cases he tried olive oil for some time, but gave it up as

of no special value; now he treats these cases chiefly by dieting and patience. On their first coming to the hospital he gave them sodium sulphate for one, or at most two, doses, and then bismuth and soda or other intestinal antiseptics. For every return of blood and mucus, a dose of sodium sulphate is given, or if scybala are passed a dose of castor oil and laudanum. Intestinal worms are not infrequent in chronic cases, and when such are seen or suspected santonin or male fern should be given. The author has come to consider salines (except in the limited doses mentioned above) as harmful in cases where there is ulceration of the great intestine. In ordinary cases the acute stage under this treatment is over by the third or fourth day, and if the stools remain free from dysenteric products he gives a tonic of iron or nux vomica and quassia.

**Cinnamic Acid**, as used by European surgeons in the treatment of joint tuberculosis, has been the subject of many favorable reports. The negative side is brought out in a recent résumé of the entire literature by F. Fränkel,<sup>1</sup> who has gone over the whole subject and has conducted numerous experiments of his own. With advanced cases of *phthisis* his results were distinctly unfavorable. In twelve cases not so far advanced, treated intravenously, for periods of from five to seven weeks, three died, one became worse, three remained in much the same condition, and five were but slightly improved. Laryngeal complications were not benefited by the treatment. Lupus was also unfavorably affected. Hemoptysis seemed to be rendered worse by the treatment.

**Pyrogallol** has already been found of value in *superficial, tubercular ulcerations of the skin, lupus*, etc., and Veiel<sup>2</sup> now recommends it in the more deeply seated processes of this nature as well. The method employed consists in the preliminary destruction of the tissues through the use of a 10-per-cent. pyrogallol-vaseline ointment, which is applied for a period of from three to five days, subsequent healing being then encouraged by a weak  $\frac{1}{2}$  to 2 per cent. application of the same preparation. The author reports on the treatment in this way of (1) deep cutaneous tubercular lesions, involving even the tender sheaths; (2) tubercular lymph glands; (3) tubercular osteitis.

In the first class of cases the results were the best, and in the author's opinion excel

<sup>1</sup>*Deut. Archiv. f. klin. Med.*, LXV, pts. 5-6.

<sup>2</sup>*Arch. f. Dermat. u. Syphil.*, XLII and XLIV.—Festschrift.

<sup>1</sup>*British Med. Jour.*, No. 2041, p. 306.



anything to be achieved by surgical measures. The only drawback is the length of time required for cure.

In tubercular glands of not too long standing and not involving the deeper structures, the results were excellent, especially from a cosmetic standpoint. In cases, however, of abscess formation with deep fistulæ, or where induration and calcification had taken place, the treatment proved futile and the scalpel and curet had to be employed. In bony tuberculosis the applications proved of value in the more superficial processes, and especially were of service in operation cases by insuring the formation of firm, fibrous cicatrices.

The author ascribes this beneficial action of the pyrogallol in the first place to some directly specific effect (perhaps the absorption of oxygen) on the proliferation of the bacilli, and in the second to the freedom with which the granulations are destroyed and free drainage provided for the secretions. In view of the possibility of its causing albuminuria, hematuria, etc., the urine of patients using pyrogallol should be kept under daily observation.

**Acrolein**,  $\text{CH}_2\text{:CH}\cdot\text{CHO}$ , is a liquid having an intensely pungent odor, and soluble in from 2 to 3 parts of water. It boils at about  $52.5^\circ\text{C}$ . E. Koch and G. Fuchs<sup>1</sup> have carried out comparative investigations with acrolein and formaldehyde in respect to their antiseptic value, and state that acrolein in  $\frac{1}{4}$  to  $\frac{1}{2}$  per cent. solutions is superior to commercial formaldehyde. The authors have also tested acrolein for the disinfection of residences, with satisfactory results. A very serious drawback to its extended use, besides its tendency to polymerize, is its unpleasant odor.

**Ichthyol-vasogen** has been used by Prof. G. Edlefsen,<sup>2</sup> of Hamburg, in various *articular affections*, such as rheumatism and arthritis, and with remarkably good results, due, the author believes, to the great ease and rapidity with which the ichthyol-vasogen is absorbed by the skin, and thus reaches the deeply-seated affected tissues. A number of cases were treated, and the clinical history of one of them is given as illustrative of the beneficial results obtained. The author used a 10-per-cent. ichthyol-vasogen, and this was ordered to be rubbed in with light massage. In cases where the joints were exceedingly painful to the touch, and could not be massaged, the remedy was painted on the affected part, while

ichthyol was also given internally in pill or capsule form, in order to assist the introduction of ichthyol into the body in sufficient quantity. This method of treatment afforded such uniformly excellent results as to lead the author to conclude that ichthyol-vasogen is a valuable addition to the materia medica, and particularly applicable in the treatment of articular rheumatism.

**Guaiacol Cacodylate** is reported by Barbary<sup>1</sup> to be a well-defined chemical, the result of the combination of cacodylic acid with guaiacol. This has been employed by the author hypodermically in doses of 0.03 to 0.05 Gm. ( $\frac{1}{2}$  to  $\frac{3}{4}$  grn.), and is said to have yielded good results in tuberculosis.

**Cacodylic Acid** has been tried by Dr. Philip Zenner,<sup>2</sup> lecturer on diseases of the nervous system in the Medical College of Ohio, in those constitutional conditions usually benefited by arsenic. One case was that of a young woman who had for years been a subject of distressing neurasthenia. She had been receiving arsenic and manganese for months without benefit. On examining her blood, the red cells were 3,300,000; hemoglobin 35 to 40 per cent. and the plasmodium of malaria believed to be present. The patient was ordered quinine, 10 to 15 grn. morning and evening for four days, 10 grn. morning and evening the following three days, then for four weeks 5 grn. twice a day, and thereafter 2 grn. three times a day. Hypodermic injections of cacodylic acid, 12 to 15 min. of a 5-per-cent. solution, were administered daily and every second day until she had received 50 injections in all. During this treatment her blood was again examined; the red cells were 3,370,000, the hemoglobin 55 to 60 per cent., and the malarial plasmodium was absent. She was again given a manganese preparation in addition to the cacodylic acid and after a time a third examination of the blood was made. The red cells were now 3,900,000, the hemoglobin 75 to 80 per cent., and the malarial plasmodium still absent. The fact that the patient had been repeatedly treated with iron, arsenic, and manganese without benefit, and that such decidedly happy results occurred after the cacodylic acid was given, lead the author to believe that the latter was probably the efficient agent, although he says that the giving of the quinine may have had something to do with the recovery.

He next tried the cacodylic acid on another anemic young woman. The hemoglo-

<sup>1</sup>E. Merck's *Bericht*, 1900.

<sup>2</sup>*Therap. Monatsh.*, XIV, p. 13.

<sup>1</sup>*Bul. Commer.*, XXVIII, p. 35.

<sup>2</sup>*N. Y. Med. Jour.*, LXXI, p. 305.

bin examination showed 75 per cent. before and after taking iron and arsenic for two weeks. After four hypodermic injections of  $\frac{3}{4}$  grn. of cacodylic acid the hemoglobin was 100 per cent. The author says that "possibly the cacodylic acid is of benefit because it can be given hypodermically," and he asserts that whereas he never was able to give other forms of arsenic subcutaneously for long at a time because of the great pain it produced "the hypodermic injection of cacodylic acid is as painless as that of morphine." He declares that his cases fully justify the further trial of cacodylic acid in constitutional conditions where arsenic is indicated.

**Terpinol** is recommended by Janowsky<sup>1</sup> for checking internal bleeding in pulmonary diseases. It is to be given in doses of 3 drops at frequent intervals; usually after from five to seven doses the improvement is very pronounced and the hemoptysis completely checked by from eight to fifteen doses. In cases of moderate severity, doses of 2 drops are sufficient; if after trial for thirty-six hours no improvement is noted, the remedy is to be abandoned. If the bleeding is checked after twelve hours the dose is reduced to 2 drops every two hours, or 3 drops every three hours. In hemoptysis due to congestion no results are to be expected from terpinol.

The only by-effect produced was a slight irritation of the fauces, which is to be avoided by prescribing the drug in milk, soup or with meals. Albuminuria or hematuria were never induced.

**Eulactol**, a combination prepared from milk and eggs, is reported by J. W. Frieser<sup>2</sup> to be one of the best concentrated foods for invalids obtainable. It is best given in coffee in doses up to 2 oz. daily. In senility, scurvy, rachitis, anemia, phthisis, and chronic functional as well as organic derangement of the gastro-intestinal tract; it has afforded him excellent results. It contains the important food-stuffs—carbohydrates, proteids, and fats—is easily assimilated, and is apparently well borne on delicate and susceptible stomachs.

**Ichthyol** in *phthisis* is accorded some attention in the annual report of the Loomis Sanatorium, at Liberty, N. Y., for the year ending November 1, 1899. The following is stated: We have continued throughout the year to use ichthyol in a number of

cases showing sepsis and more or less profuse expectoration. The greatest objection to the use of this drug is that the immense daily doses, averaging from 20 to 30 grn. three times a day, preclude its employment among patients whose financial means are at all limited. Its effect in the way of changing purulent sputum is so certain as to be almost specific, and for that reason, together with the percentages of good results attained, it has been used, so far as possible, in cases advanced beyond the incipient stage. The appended table shows the results attained from its use:

NUMBER OF CASES TREATED, 64			
CONDITION BEFORE TREATMENT		PHYSICAL SIGNS	
Incipient stage.....	17	Improved.....	49
Moderately advanced....	39	Stationary.....	7
Far advanced.....	8	Increased.....	8
TUBERCLE BACILLI		GENERAL CONDITION	
Not present.....	6	Improved.....	51
Disappeared.....	7	Stationary.....	5
Decreased.....	34	Unimproved.....	8
Unchanged.....	17		
COUGH		EXPECTORATION	
Decreased.....	53	Decreased.....	53
Stationary.....	11	Stationary.....	11
WEIGHT		SUMMARY	
Gained.....	51	Apparently cured....	17%
Stationary.....	6	Improved.....	62%
Lost.....	7	Stationary.....	8%
		Worse.....	12%

**Nauheim Baths** at home is a result of the cost involved in the original Nauheim bathing procedures. One of the most important of a number of unique substitutes is that suggested by R. Hatschek,<sup>1</sup> who rapidly applies a paste composed of sodium bicarbonate to the body, and then wraps the patient about in a cloth which has been moistened with weak hydrochloric or acetic acid. This produces a rapid evolution of carbon-dioxide gas, which in its turn induces the conditions desired. The stimulation of the capillaries and the nerve terminals in the skin brings about healthy action. This treatment, combined with massage, promises good results in heart cases, and is recommended by the author.

**Metacresol-anytol (Metasol)** has been investigated by L. Schwab,<sup>2</sup> who confirms the decided bactericidal action of the anytols, first announced by E. Löffler. The employment of a 2-per-cent. metacresol-anytol is particularly recommended as a disinfectant, because it is free from all causticity, and does not lose its antiseptic power in the presence of albuminoids. Further advantages accredited to the preparation are indifference towards surgical in-

<sup>1</sup>Klin.-therap. Woch., VII, No. 8.

<sup>2</sup>Klin.-therap. Woch., VII, No. 6.

<sup>1</sup>Wien. klin. Rundschau, 1899, No. 4.

<sup>2</sup>E. Merck's Bericht, 1900.



struments and relative non-toxicity, the latter being particularly shown by the tests made on animals by Seybolds, in which doses of 0.5 Gm. (8 min.) of the pure metacresol-anytol per kilo (2.2 lb.) of body-weight were borne without any disturbing effect being noted.

The preparation has been introduced into the market under the name "metasol," in the form of 1- and 2-per-cent. solutions.

**Arsenic** is reported to cause *peripheral neuritis*, by F. C. Railton,<sup>1</sup> who relates some unusual poisoning symptoms in four cases of chorea which were taking arsenic at the Manchester Clinical Hospital. It is of interest to note that peripheral neuritis developed in at least three of these cases without the usual premonitory signs of gastric and intestinal irritability. The paralysis affected the lower extremities, and came on gradually for several weeks after the termination of the patient's stay in the hospital. All of the cases recovered after protracted convalescence. The author believes that if 6½ grn. of arsenous acid be given during a period of time of three weeks, such peripheral paralysis may develop. This is due to the slow elimination of the arsenic.

**Largin** has one obvious practical advantage over other silver salts in the fact that its application neither causes pain nor is it followed by any appreciable reaction, is the verdict of Sydney Stephenson,<sup>2</sup> M. B., F. R. C. S., Edin., ophthalmic surgeon to the Evelina Hospital, Hanwell, England, after several months extensive trial of largin in the treatment of *eye disorders*, particularly ophthalmia. He used 3, 5 and 10-per-cent. solutions, and in some cases applied it as undiluted powder.

In the common acute contagious ophthalmia, due to the tiny Koch-Weeks bacillus, largin yielded splendid results. In twenty such cases, some of a severe nature, a rapid cure followed the daily application to the conjunctiva of a 10-per-cent. solution.

In acute trachoma, the author declares, largin has likewise given good results. As a result of his trial in over 100 cases, he draws the following conclusions:

The application of largin, even in concentrated form, is painless, but, when prolonged beyond a few weeks, may stain the conjunctiva. It acts well in blepharoconjunctivitis, and in some cases of dacryocystitis. It is an efficient substitute for silver nitrate in any of the con-

junctival inflammations associated with the Koch-Weeks bacillus, such as acute infectious ophthalmia and acute or subacute trachoma. It acts admirably as a temporary remedy after any of the operations commonly practiced for the relief of chronic trachoma.

In gonorrheal ophthalmia and in diplobacillary conjunctivitis, he has found other remedies that effected better results. He holds that largin seems likely to gain a permanent place among the somewhat restricted number of remedies employed in everyday eye work.

**Epicarin** ( $C_6H_3:COOH:OH.CH_2C_{10}H_6-OH$ ) is a condensation-product of creosotinic acid and beta-naphthol. In the ordinary form in which it is found in the market, it forms a reddish-yellow, strongly acid powder, melting at 199° C., and readily soluble in alcohol and in ether. It forms easily soluble, neutral salts. According to Frick and Muller, epicarin is but very slightly toxic, and is a good remedy for scabies in dogs, as it quickly checks the itching, and rapidly removes the affection when contracted by a human being. Prof. Kaposi<sup>1</sup> states that epicarin is also effective in cutaneous diseases in human beings, and that its action, resembling that of beta-naphthol, perhaps renders it of special benefit in the treatment of children. He recommends the epicarin to be used in the form of a 10-per-cent. ointment with any suitable base, or in solution with alcohol and glycerin.

**Opium** is announced by Dr. E. V. Swing,<sup>2</sup> of Coatsville, Pa., to be still "king of pain." He states that in spite of its failings and drawbacks, we are still compelled to accord it its ancient prestige as a pain reliever, as none of the more modern analgesics can successfully take its place. Among its alkaloids, codeine is effective in relieving cough. In diarrhea, he holds that one cannot do full justice to his patients unless opium is given, and where hemorrhage occurs its use is imperative. The author goes on to say that opium and gallic acid in diabetes insipidus and codeine in diabetes mellitus are certainly valuable remedies, almost classical in their application to these diseases, and oftener successful than any other line of treatment. The only objection to be urged, perhaps, being that as these affections are apt to be chronic, the danger of the opium habit is to be considered. It is certain that opium should be chiefly used in

<sup>1</sup>Med. Chronicle, 1900, No. 2.

<sup>2</sup>British Med. Jour. No. 2046, p. 622.

<sup>1</sup>E. Merck's Bericht, 1900.

<sup>2</sup>Penn. Med Jour., III, p. 507.



acute diseases, for this reason. For the same reason, opium should be withheld from the intensely neurotic, and if possible not given to such persons at all. These individuals are the ones from which the army of opium and morphine fiends is recruited.

As a stimulant, to support the system, opium is a valuable agent. Many a poor patient has been tided over a dangerous collapse by the administration of this drug at the critical moment. Then, too, in some cases of wasting diseases, opiates have contributed to prolong life.

For the aged, the author concludes, it is not only perfectly safe, but may be given habitually, if necessary, to procure comfort and surcease of pains and aches of any kind. In such cases life will not only be prolonged, but rendered vastly more comfortable.

**Sodium Para-fluorobenzoate** occurs as a white powder, soluble in cold water. It has been tested clinically by Dr. A. Philippon,<sup>1</sup> and while it may not suffice to effect a definite cure, it is recommended for use in *lupus* and other tuberculous processes. The preparation is given in doses of 0.5 Gm. (8 grn.) thrice daily, in wafers. Although sodium fluoride, given internally, has been found to have a directly curative action on *lupus*, the by-effects prevent the exhibition of the requisite doses. This drawback has been overcome, the author claims, by the use of sodium para-fluorobenzoate.

**Guaiaicol** and **Ichthyol** as local applications in the treatment of *epididymitis* are commended by Dr. H. M. Christian,<sup>2</sup> surgeon in charge of the Genito-urinary Dispensary of the University of Pennsylvania. Having heard of the efficacy of guaiaicol he instituted experiments at the University and Polyclinic hospitals to learn if the reports were reliable. He states that guaiaicol was used in sixty acute walking cases. In all but six great relief from pain followed during the course of the first twenty-four hours after application. In many the relief occurred in a few hours. All were able to keep on their feet during the whole of the attack, with little discomfort. The application of the drug was followed in all cases by a smarting and tingling sensation in the skin lasting for about an hour. Dermatitis did not occur in any case.

The method pursued in carrying out this line of treatment was as follows: The testicle was first gently massaged with a small

amount of a 20-per-cent. guaiaicol ointment made up with wool-fat. Some of this ointment was then spread upon lint and applied over the affected testicle; the whole of the scrotum was enveloped in a layer of absorbent cotton, and over this was applied a snugly fitting laced suspensory bandage. In many cases where this bandage could not be procured, the dressing was kept in place by means of a 1½-inch gauze bandage. This dressing was reapplied every other day. At the end of about six days, when the inflammation and pain had entirely subsided and the testicle could be easily handled, the following ointment was substituted as a dressing in place of the guaiaicol:

Mercurial Ointment.....	} of each, 2 dr.
Belladonna Ointment....	
Ichthyol .....	
Wool-fat .....	

Under the use of this ointment the testicle was found in most cases to return to its normal condition in from two to three weeks; much less time was needed in many instances.

This is the line of treatment in vogue at present both at the University and Polyclinic hospitals, with most satisfactory results. Epididymitis being a self-limited affection, nothing can be said to cure it, the author concludes, but the above line of treatment, if carefully carried out by the physician himself and not intrusted to the patient, will be found to afford the greatest relief.

**Ichthyol** has been used in *pelvic peritonitis* by Dr. C. H. Stratz,<sup>1</sup> who reports having obtained excellent results. He made vaginal applications, or injected dilute solutions of the remedy into the uterus, besides applying compresses to the abdomen.

Ichthyol-vapor bandages, such as have been recommended by Unna for dermatological purposes, have also recently been employed in conjunction with the injections, as the impermeable coating affords the advantage of greatly reducing the odor of ichthyol, to which many patients are sensitive.

**Iron and Ammonium Arseno-citrate** occurs as green scales that are very readily soluble in water, and contains 1.4 per cent. of arsenous acid and 15 to 18 per cent. of metallic iron. According to Valvassori and Peroni<sup>2</sup> it is a valuable *antiperiodic*, well adapted for hypodermic use in children. For the complete course of treatment 30 to 50 injections (into the gluteal region) are

<sup>1</sup>E. Merck's Bericht, 1900.

<sup>2</sup>Therap. Gazette, XXIV, p. 145.

<sup>1</sup>Zeitschr. f. Geburtsh. und Gynekol., XLII, No. 1, p. 106

<sup>2</sup>E. Merck's Bericht, 1900.

required. It is stated that after the second or third injection the children no longer appear to feel any pain; no disagreeable gastric disturbances are noted, nor have other local or general by-effects been observed to follow this form of medication, which was effective even in cases in which quinine had failed. The following formula is recommended for preparing the injection fluid:

Iron and Ammonium	} 0.35 Gm. (6 grn.)
Arsenocitrate.....	
Sterilized Distilled	} 10 Gm. (2½ fl. dr.)
Water.....	

Inject 1 Cc. (15 min.) every second or third day.

Each Cc. of the solution contains 0.035 Gm. (say ½ grn.) of the medicament, equivalent to 0.0005 Gm. (1/200 grn.) of arsenous acid.

**Acute Rheumatism**, because of its characteristic anorexia and embarrassed metabolism, is believed by Dr. W. Ewart,<sup>1</sup> of London, to be best treated by freeing the bodily outlets and carefully measuring the supplies. He questions whether this disease could long co-exist with a diarrhea, and therefore advises the fortification of salicylate treatment with mild cholagogues, diaphoretics, and diuretics. Sodium or lithium salicylate should be given in full doses, but in the presence of albuminuria all salicylates should be prohibited. Whether with or without salicylates, he would never omit the use of alkalies. He prefers potassium citrate to the bicarbonate. Both the salicylic and alkaline treatment should be continued with diminishing frequency for two or more weeks after the cessation of joint symptoms, and the urine kept alkaline partly through diet. As the salicylate is diminished, quinine is added, or, if it has been given earlier, increased.

The iodides of potassium and of sodium, of undoubted service in acute rheumatoid arthritis, are likely to be useful in some of the "symmetrical" rheumatic cases when the skin is sufficiently tolerant. They are prescribed in acute rheumatism with repeated vesication over the chest, for the prevention and cure of endocarditis. They are specially recommended by the influence which they exercise upon the lymphatic system on the one hand, upon the blood on the other. Potassium iodide has been credited with a power to consolidate aneurysms. In the author's own cases, after considerable doses taken continuously for many months, no clotting was found within the sac. The real tendency of the iodide is to

lower the coagulability in spite of the favoring influence of a diseased arterial surface, and he expects good results from it in a disease where the absence of clotting is the great end to be secured.

When drugs entirely fail the tendency is usually to localization, and the primary indication is to treat the joint by splint and bandage, elevation, leeches or blisters, incisions, and graduated pressure; the next being internal support in the chief line of weakness by quinine, nerve tonics, or stomachics. Mild salines are wanted, but salicylates and strong alkalies are worse than useless, the author concludes.

**Whooping-cough** in children of three years of age and upwards is treated by Dr. Henry Coggeshall, of New York, by cocaineizing as much of the nasal mucous membrane as can be done by the use of a spray, followed by cotton-tipped probes wet with the solution, then an application of a 2 or a 4-per-cent. solution of silver nitrate to the nose and naso-pharynx, to be followed by a mild alkaline and antiseptic wash by spray or by post-nasal douching. He suggests the trial of suprarenal extract, applied to the nasal mucous membrane, in such cases. He does not think that the course of chief importance in treating this disease is to try to kill the germs. The author has successfully treated four cases in the way he describes, and states that in one of them, which he took hold of at an early stage, the disease was seemingly aborted within two days.

**Measles** and its treatment was the subject of a recent paper read before the Columbus Academy of Medicine, by Dr. E. W. Woodruff.<sup>2</sup> He dwelt particularly on the necessity of hygienic measures to prevent a fatal issue and distressing complications, pointing out the fact that so far it had proved impossible to abort this disease. In relieving the various symptoms, he gave the following advice:

Burning or itching of the skin is best relieved by warm baths, followed by anointment with carbolized oil or cold cream. A few drops of a 2-per-cent. solution of morphine will quiet the extreme irritation of the eyes: for the relief of any purulent discharge the eyes should be kept clean by the application of a warm solution of boric acid, frequently applied.

The intense nausea, which is not uncommon in the early stages of the disease, will

<sup>1</sup>*British Med. Jour.*, No. 2046, p. 629.

<sup>2</sup>*Med. News*, LXXVI, p. 496.

<sup>3</sup>*Columbus Med. Jour.*, XXIV, p. 67.



generally be readily controlled by full doses of bismuth subnitrate; or small quantities of hot water, given every five to ten minutes, will often prove effectual.

Great restlessness may be met by occasional doses of sodium bromide, largely diluted.

The hard, ringing cough is one of the most distressing symptoms of the disease, and very little relief can be expected from treatment till the fever begins to subside. Potassium citrate, with wine of ipecac, is very useful. Where the cough is largely dependent upon a dry, parched condition of the nose and throat, a thorough application of a Seiler solution or a liquid vaselin, by the atomizer, will give prompt relief. To give rest, Dover's powder may be required. For the reduction of high temperature, tepid baths or sponging is preferable to large doses of antipyretics. Uncomplicated cases require no stimulants. If constipation is present in the beginning of the attack, it should be relieved by the use of enema, or very mild laxatives, as cathartics may do positive harm. Diarrhea requires no control at first, but later, if it becomes more persistent, it may be restrained by the use of bismuth, or bismuth and opium.

**Anorexia** is clinically considered in a recent paper by Dr. Milton P. Creel,<sup>1</sup> surgeon to the Illinois Central Railway. He states that for a very long time the bitter tonics were practically the sole reliance of the profession in treating loss of appetite, notwithstanding that they so frequently fail to be of any service. His experience with and study of gentian, calumba, and others of that group convinced him that they do not possess all the virtues attributed to them and did not increase the appetites of his patients. He is inclined to believe that it is generally merely coincidental when appetite follows their use, as when they are administered to young persons after attacks of acute maladies. Whenever they are given in cases where a return of appetite is quite uncertain, as in the anorexia of anemia, phthisis, and other diseases, they almost invariably fail to give the hoped-for result. Both gentian and calumba often entail constipation, and the author has seen great harm done by bilious attacks due to their administration.

For some time he has been trying a newer remedy "which has proved itself in the truest sense an appetizer and stomachic," and has given him "results of the most satisfactory nature." This agent is orexine tannate.

given, generally, in doses of 6 grn. a half-hour before meals. He frequently prescribes the following:

Orexine Tannate.....108 grn.  
Syrup Chocolate.....1 fl. oz.  
Mucilage Acacia.....to make 3 fl. oz.

Dose: Teaspoonful a half-hour before meals.

He says that orexine tannate, besides being an appetizer, is an anti-emetic of power; and in the anorexia of phthisis and syphilis, after surgical operations, and in other conditions where its virtues as a true appetizer could be tried, it has acted most happily. It carries no associated bad effects and is not followed by any untoward action.

It has often acted most happily in patients with gastric acidity due to fermentation, and the author is sure that it has produced an appetite in many patients with anemia and phthisis, and in convalescents from acute diseases who would have gone along for an indefinite period in a grave state but for its regular employment. He has, therefore, now come to look on this remedy as a most reliable and essential one, and that its future is one of widespread importance in a condition which has hitherto been without a remedy of merit.

The author gives a number of clinical histories showing the beneficial effects of orexine tannate in serious cases. In one case of pleurisy, complicated with grip, in which a lingering anorexia seemed to be the sole cause of the retardation of recovery, the patient rallied quickly when placed upon this remedy. In another of phthisis, a week's treatment with orexine tannate along with the usual remedies restored the appetite and brought comfort and strength to the sufferer.

The author had among his cases an old gentleman eighty-nine years of age, with fracture of both femurs caused by falling from a moving train. During the course of his treatment, appetite failed him, and he was put upon orexine tannate with happy results. The author says: "I regard this patient's recovery as being due entirely to the well-nourished condition in which I was able to keep him by his appetite being good."

ERRATA.—In the abstract on "Dionin in painful affections," in the February number, p. 73, credit as author of the original article should have been given to Dr. Adolf Hoff, who is of Prof. Stoffella's Polyclinic at Vienna. In the abstract "Bromipin in the treatment of epilepsy," p. 67 of the February number, the author's name should appear as Dr. F. Schulze, of Hildesheim.



# The Prescription

We wish to have our readers use this department with the utmost freedom. Any question about the prescription or about any substance used in prescriptions comes within its range. We shall do our best to find correct answers for all, and if we fail for lack of information at hand, some one of our readers may be able to give the right reply. On questions of therapeutics or practice we shall not attempt to give any opinions of our own, but find for the questioner what the best available authorities on such subjects have to say upon them. Let every reader resolve his doubts about compatibilities, doses, latest remedies, best methods of administration, dangers of remedies, etc. Send in favorite prescriptions and let others be benefited by what you have discovered. We shall give full credit for all such information. As some persons do not care to have their names appear as the authors of queries, we will refrain from giving names in this connection when requested to do so. Sometimes it is an advantage to have the writer's name published, and in such cases we hope that overdifidence will not interfere with the right.

S. J. W., of Michigan, has forwarded two sets of queries. The first set was crowded out of our last issue by other matter. Some of them are not in the domain of drugs, and therefore scarcely within the limits of the work of the ARCHIVES. The following embraces both sets of questions. Perhaps some reader can give, in a future number, more detailed answers than we can now offer:

1. Is uric acid an intermediate product of digestion or a waste product of tissue change?—Such evidence as physiologists supply would seem to indicate that the production of uric acid is one directly connected with metabolism and not with tissue waste. While it is found in minute amounts in various parts of the body, its chief source seems to be the liver.

2. Does bismuth subnitrate act as an antiseptic to any extent in the digestive tract?—There is no evidence of its possessing any marked antiseptic power.

3. Are the fumes of sulphur, when used for fumigating a dry room, strong enough to kill germs?—Such fumes have no effect upon dry spores, and can only affect such germs as are in a moist condition.

4. It is said that calcium sulphide forms sulphuretted hydrogen in the system. Does this possess any antiseptic properties in the circulation?—Sulphuretted hydrogen acts as an antiseptic to some degree in the intestines, but not in the circulation. We have no knowledge of any substance that exerts antiseptic power in the circulation.

5. Is not salicylic acid a better antiseptic in the circulation than any of the mineral acids, better than carbolic acid and better than sulphocarbolates of zinc, lime or soda?—Salicylic acid enters the circulation chiefly as salicylate of sodium or potassium; the mineral acids enter as sodium, potassium or calcium salts, and carbolic acid enters as alkaline carbolates or as sulphocarbolates. In the circulation the dilution is so great that it is difficult to believe that any appreciable antiseptic effect can be produced by their presence.

6. When the blood is loaded with waste

matter which the system has failed to eliminate, is it (the blood) thicker or thinner, freer or more sluggish than normal?—It would be impossible to answer this question with any degree of positiveness in the absence of direct experimental proof. Judging from our knowledge of the mechanism of the circulation we would not expect much, if any, difference as a rule, while there might be in some instances increased dilution and in others increased thickening. As the freedom and sluggishness of the circulation depend chiefly on its nervous mechanism, the condition will be subject to the effect of the contained impurities upon that mechanism. If they irritate the controlling nerves there will be increased speed of circulation, but if they deaden or obtund their power sluggishness will result.

7. Do the sulphocarbolates exert their antiseptic influence the whole length of the digestive tract?—This is a disputed point. If taken in fairly large amounts, following sharply in the wake of a brisk cathartic, it is not at all unlikely that they do. If taken in smaller amounts, under ordinary conditions they probably do not. After passing the points where reducing agents are being freed in abundance, they will have become converted into less antiseptic bodies and have become so far diluted that their action will be inappreciable.

8. Why is not salol as good an antiseptic in the digestive tract as the sulphocarbolates?—Salol is generally held to be a more powerful antiseptic in the intestinal tract than any sulphocarbolate, unless zinc sulphocarbolate be held to be its equal. It is superior to the latter in being more agreeable and less dangerous. The sulphocarbolates are converted in the intestines into carbolic acid and salts of the metals. Salol is converted into carbolic acid and salicylic acid. It is thus evident that the salol has the advantage over the sulphocarbolates of its salicylic acid, which is a powerful intestinal antiseptic.

9. Is not sodium salicylate a better anti-

septic, in the circulation, than the mineral acids, carbolic acid or alcohol?—The blood itself is antiseptic. Its phagocytes are always on the alert to destroy germs. We know of no way of increasing its bactericidal power by the addition of drugs. Salicylic acid is the best of the named bodies for intestinal antiseptis. It probably exerts its influence much farther down into the alimentary tract than the others do.

**R. W. M., Pa.,** wishes to know if we "receive any reports of untoward skin effects of orthoform or its latest relative, nirvanin." He has apparently had a rather unfortunate experience with the former, in that in all his cases, after using it as a dressing for three or four days, a severe dermatitis resulted in the form of closely crowded vesicles, simulating acute eczema but ten times more obstinate. This experience deters him from using nirvanin for fear of the same or kindred ill results. He adds: "We ought to have the truth about therapeutic agents that seem capable of doing so much good and so much evil." We fully agree with Dr. M. in his closing comment. It is not likely that we will ever be in possession of any drug possessing powers for good that is not capable also of harm. The physician does not live who can foresee conditions, like idiosyncrasies, that contraindicate the use of a useful drug. He cannot foresee how this way of using a drug may completely alter its results or change its nature. In the case of an external application, he cannot foresee the effect of some local germ of his own neighborhood that may find the conditions established by the new remedy the very ones that favor its growth. He cannot foresee the character of the water, soap, dust, or telluric conditions that may chemically react upon the remedy and produce unlooked-for results; nor how even some unusual article of food that is a favorite in his neighborhood might have some unusual effect.

The science of therapeutics is very extensive and complicated. When a new remedy is placed before the profession it should be the duty of every physician who uses it to let the supplying firm know exactly what his experience with it is. They should be told of its failures as well as of its successes. Some doctors will make no reports on behalf of their fellow practitioners; others are silent when the results are good, and they are a majority, while still others only write when they can condemn. It is a rare virtue in any man to be

willing to tell the whole truth and nothing but the truth. No firm is going to press upon the profession very long a poor article. If every doctor who uses orthoform had the same experience with it as our correspondent, the fact could not have been suppressed till this time. The fact that no such case has before been reported would seem to indicate that it is not its usual action. Dr. M. is right in reporting it and deserves praise for doing so. He should, however, try to discover why the remedy behaved so differently with him from its usual way of acting.

**H. B. C.,** of Black River Falls, Wis., reports his late experience with orexoids and ichthalbin. His first case was a woman of 47 years, suffering from neurasthenia resulting from influenza, menopause, and fatigue from overnursing and care. For years she had no desire for food and had tried to encourage her appetite with various kinds of food and remedies. She was started on half doses of orexoids at 10 A. M., and half doses of ichthalbin before meals. He says: "Slowly a desire for food began, the fullness of stomach which was so disagreeable lessened, the fetid odor of the mouth, which she complained so much of, lessened, and in fact, from a condition where death would be preferable, she is to-day, though not strong, comparatively well." She now, after years of having no desire for food, has come to desire food, digests it well, rests well at night without medicine, and her bowels are regular. He has since used the same remedies in other cases, though of shorter duration, but with the same happy results.

**Dr. F. O. Price,** Post Oak, Tex., reports having tried orexoids in a case of nervous dyspepsia dependent upon uterine trouble, hysteria, and anorexia. He says: "All other remedies used were of no use. Orexine tannate was given a trial with good results. The case is still improving."

**Dr. W. P. Wells,** of Jewett, Ohio, reports the case of an acting hospital steward of the United States Army, home on furlough from Porto Rico, whom he treated with tannalbin for chronic diarrhea. He had been having from five to eight watery stools daily for five months, with pain and tenderness over the whole abdominal region. He was given 15 grn. of tannalbin after each movement of the bowels. Before starting the tannalbin, the intestines were thoroughly cleaned with a 10-grn. dose of calomel. In five days the pain and

tenderness were much lessened and the discharges reduced to three a day, though still watery. He was now put on 15-grn. doses of ichthalbin every three hours. In a week the discharges commenced to thicken and the tenderness had gone. In twelve more days he had gained 17 lbs. in weight and was discharged well. Three weeks later the doctor heard that he was still well and had increased still more in weight. Before trying tannalbin he had for five months tried all the usual means at his command without good results.

**Dr. F. F. Lehman**, Sandusky, Ohio, after trying a sample of dionin, says: "The results of the sample were so satisfactory that I have ordered my druggist to secure a supply. It relieved, greatly, a severe cough, induced sleep, and favored expectoration without producing any unpleasant by-effects."

#### Room Disinfectant:

Formaldehyde (40%) ..... 10 fl. dr.  
Beechwood Creosote..... 2½ fl. dr.  
Oil Turpentine ..... 6 fl. dr.  
Menthol..... 1 dr.  
20 to 30 min. to be heated on a metal platter as occasion demands. —*Phil. Med. Jour.*

#### Liver Pills:

Podophyllin .... 10 grn.  
Leptandrin ..... 1 dr.  
Powd. Sanguinaria..... 1 dr.  
Fld. Ext. Nux Vomica..to make 60 pills  
One pill at night.

—*BALL, Med. Summary.*

#### Local Anesthetic:

Chloroform ..... 150 min.  
Ether ..... 250 min.  
Menthol .... 15 grn.  
Spray over the surface to be anesthetized. The anesthesia lasts from two to six minutes.  
—*N. Y. Med. Jour.*

#### To Lessen Danger of Cocaine Injections:

Resorcin ..... 40 grn.  
Cocaine Hydrochlorate..... 80 grn.  
Distilled Water.....to make 1 fl. oz.  
The resorcin is said to diminish the toxic effect, increase anesthesia, and prevent the crystallization of the cocaine. —*HALL, Med. Record.*

#### Painless Vesicant Plaster:

Chloral ..... 1 dr.  
Spermaceti ..... 4 dr.  
Cacao Butter..... 2 dr.  
Spread on linen. —*Med. Record.*

#### Emetic for a Child:

Powd. Ipecac..... 7½ grn.  
Tartar Emetic..... ¼ grn.  
Syrup Squill..... 150 min.  
Distilled Water.....to make 1 fl. oz.

For a child of six to ten years, one teaspoonful every ten minutes until vomiting occurs.

—*BAGINSKY, Practitioner.*

#### Alterative:

Arsenic Chloride..... 1 min.  
Ammonium Chloride..... 2 dr.  
Tinct. Iron..... 4 fl. dr.  
Mercuric Chloride..... 1½ grn.  
Syrup ..... 3 fl. oz.  
Water.....to make 6 fl. oz.

One teaspoonful three times a day.

—*Phil. Med. Jour.*

#### Diaphoretic:

Camphor ..... 30 grn.  
Opium. .... ½ grn.  
Potassium Nitrate..... 3 grn.  
Sugar ..... 2 dr.

Take in a cup of tea before retiring.

—*VON GRAEFFE, Med. Record.*

#### Diuretic Pills:

Powd. Squill..... }  
Powd. Digitalis..... } of each, 30 grn.  
Caffeine..... }  
Calomel..... 5 grn.

Make into 30 pills and give one three times a day after meals.

—*Practitioner.*

#### Iron Diuretic:

Tinct. Iron..... 4 fl. dr.  
Potassium Acetate..... 4 dr.  
Syrup ..... 2 fl. oz.  
Water ..... 2 fl. oz.

Two or three teaspoonfuls four times a day.

—*ALLBRIGHT, Med. Record.*

The International Congress of Medical Electricity and Radiology will meet at Paris from July 27, to August 1, 1900, at the Exposition grounds. President, Dr. G. Weiss; secretary-general, Professor E. Doumer, rue Nicolas-Leblanc, 57 Lille.

The Doctors' Magazine Publishing Company, of Chicago, Ill., makes the following announcement: Dr. George F. Butler—editor of the *Doctors' Magazine*, professor of materia medica and clinical medicine in the College of Physicians and Surgeons, Chicago (Medical Department of the Illinois State University), and author of the well-known text-book on "Materia Medica, Therapeutics, and Pharmacology"—has accepted the superintendency of the Alma Sanitarium, Alma, Mich., his duties to be assumed May 1, 1900. Dr. Butler will retain his professorship in the College of Physicians and Surgeons and will continue to edit the *Doctors' Magazine*, which, as in the past, will maintain a thoroughly independent attitude as a liberal and progressive periodical.



# Book Notices

The profession will welcome the work *DIABETES MELLITUS AND GLYCOSURIA*, by Emil Kleen, Ph.D., M.D., of Carlsbad; translated into English by A. A. Eshner, of Philadelphia. The subject of diabetes and glycosuria is one of great importance and interest to the medical practitioner. Under the term diabetes mellitus are included several pathologic conditions imperfectly understood, but in most cases affecting the central nervous system, and characterized by a faulty metabolism. These cases are often met with in practice, and some of them, which at one time were considered almost necessarily incurable, are now found to respond to treatment. Probably the time will come when we will be able to control the diabetic condition more so than at present, as the causes come to be better understood. Among the thousands of patients annually visiting Carlsbad in search of health, the diabetics represent a large proportion and afford the resident physicians an excellent opportunity of carefully studying the glycosuric dystrophy with its manifold complications. Dr. Kleen was for some years a practitioner in the Bohemian Spa and he has made an exhaustive study of the subject, both from a clinical and etiological standpoint. The work is of a practical nature, and is designed for the guidance of the general practitioner. The section on treatment deals with prophylactic and curative measures, including both drugs and diet. (Philadelphia: P. Blakiston's Son & Co. 313 pages. Price, \$2.50 net).

A valuable addition to our knowledge of the subject is the work *DISEASES OF THE STOMACH*, by John C. Hemmeter, M.D., Philos.D., professor in the Medical Department of the University of Maryland, Baltimore, Md. The first edition of this work made a second revision of it necessary a little over one year from the date of its first publication. The second edition has been practically rewritten, as the author states that there are probably not fifty pages in which some important insertion or alteration has not been made. A large amount of new material has been added, and the work as it now appears covers 898 octavo pages, with many original illustrations, a number of which are in colors. (Philadelphia: P. Blakiston's Son & Co. Price, \$6 net, cloth).

*DISEASES OF THE NOSE AND THROAT*, by J. Price-Brown, M.B., L.R.C.P.E., of Toronto, Ontario, treats of a subject of which the general practitioner has but a small amount of knowledge. Patients are constantly sent to specialists of acknowledged skill by physicians of towns and cities far remote from the consultant, and many

of these cases might have been retained at home to the mutual profit of physician and patient if the former had possessed a little more intimate knowledge of the subject. Such works as the one before us will be found of inestimable value to the general practitioner who desires to obtain a practical knowledge of laryngology and rhinology. The special merits of the work will be seen at once upon a cursory examination of its pages. The anatomical plates taken directly from nature, and illustrating the nasal cavity, sinuses, etc., in detail; the excellent cuts of instruments and apparatus, and of the mode of application; the graphic descriptions of diseases and careful directions for their treatment—all of these points give the work special value to the physician. The book is illustrated with 159 engravings, including 6 full-page color plates and 9 color cuts in the text, many of them original. (Philadelphia: F. A. Davis Co. 470 pages. Price, \$3.50 net).

*PRACTIQUE DE LA CHIRURGIE COURANTE* is the title of a small volume comprising 554 pages of text by Dr. Marius Cornet, intended to provide the busy general practitioner with a comprehensive yet tersely written compendium of general surgery in the light of modern advancement. Only those operations are described which the general practitioner is likely to be called upon to perform, hence all those of a very serious nature and requiring elaborate preparations are omitted. The subject matter is divided into eight chapters, comprising general surgery, surgery of the limbs, head, and face, thorax and neck, abdomen, genito-urinary organs, and gynecological surgery. The work is illustrated with 111 cuts, among which are many illustrating new and improved apparatus.

## Publications Received

*A CLINICAL CONTRIBUTION TO THYROID THERAPY*. By Charles E. Hirsh, M.D., New York. Reprinted from *The Medical News*, February 24, 1900.

*STONE IN THE BLADDER*. By H. Wellington Yates. Reprinted from the *Leucocyte*, February, 1900.

*SOME CASUAL REMARKS ON PROSTITUTION AND VENEREAL DISEASES in Their Relation to the Public*. By Isadore Dyer, Ph.B., M.D., New Orleans, La. Presented to the Brussels Conference on the Prophylaxis of Syphilis, etc., September 4, 1899.

*EIGHTY-SIXTH ANNUAL REPORT of the Trustees of the Massachusetts General Hospital*, 1899.

*EXTIRPATION OF THE UTERUS AND OVARIES FOR HEMATOSALPINX COMPLICATING PREGNANCY*. By M. Neumann, M.D., San Francisco, Cal. Reprinted from *American Journal of Surgery and Gynecology*, xi, No. 4.

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### The American Therapeutic Society

THE first week in May of the present year saw a new star added to the galaxy of societies of medical specialists that make Washington their headquarters. It is probable that at the next meeting of the Congress of American Physicians and Surgeons in 1903 the American Therapeutic Society will have become qualified for admission to that body, thus filling in a gap that has been painfully apparent to all who had at heart the desire to see a symmetrical growth of medical science in this country. When we consider that therapeutics is the very fruit of the medical tree it seemed strange that no provision was made for the future development of that fruit by so august and representative a body as the Congress of Physicians and Surgeons at its inception, instead of waiting until now to organize for such work. The apathy that held back prominent teachers of therapeutics and materia medica from organizing at an earlier date seems finally to have been overcome, and it is to be hoped that the new society will show itself an engine of progress of the first order. It certainly has a large task before it and unless it can command the cleansing power of a

modern Alpheus and Peneus it will find itself so buried in the accumulations of a century of greed, superstition, and ignorance that anything it may attempt to do will be forestalled and frustrated. A glance at the list of officers shows that the new organization is a strong and promising one. It contains the names of some of the best known therapists in the country. The President is H. C. Wood, of Philadelphia; the Vice-President H. H. Baker, of Washington; R. W. Wilcox, of New York; E. H. Long, of Buffalo; the Secretary N. P. Barnes, of Washington; the Recorder W. M. Sprigg, of Washington; the Treasurer J. S. McLain, of Washington; the Censors, T. E. Satterthwaite, Leon L. Solomon, D. O. Leech; the Judicial Council, S. C. Busey, of Washington (Chairman); Wm. Osler, of Baltimore; A. R. Cushny, of Ann Arbor; J. J. Abel, of Baltimore; R. T. Edes, of Cambridge; F. Pfaff, of Cambridge; H. A. Hare, of Philadelphia; S. E. Jelliffe, of New York; T. E. Satterthwaite, of New York; J. T. Winter, of Washington; R. Reyburn, of Washington (Vice Chairman), D. O. Leech, Washington; L. L. Solomon, of Louisville; J. V. Shoe-

maker, of Philadelphia; J. Tyson, of Philadelphia; D. R. Brower, of Chicago; J. N. Hall, of Denver; G. C. Ober, of Washington; F. R. Morgan, of Washington. Only let these men put a determined front to the work that this society should do and they can accomplish wonders along lines that are as yet but dimly seen by the most far seeing among them. To-day only commercial interests are willing to work out the therapeutic value of drugs. Hundreds, perhaps thousands, of physicians of high standing, after trying valuable remedies, seem to be afraid to tell their fellow practitioners the exact truth concerning their results. If their success has been bad they hesitate in giving the facts for fear of offending some one or for fear that it might be shown that the trial they gave the remedy revealed a lack of skill on their part. If the results are good then it is sometimes a matter of grave import as to whether or not it is right to proclaim the fact for the benefit of others. The present state of affairs is an exceedingly painful one, and it is to be sincerely hoped that the organization of the American Therapeutic Society will bring to the profession a better understanding of the true boundary line that lies between fact and fancy as well as between science and secrecy. If this society will but establish a board of examiners willing and able to work and this board will put itself in direct communication with all the chief hospitals and dispensaries of the country so as to secure their co-operation in finding out the exact value of every *promising* new remedy, and, as time will permit, of every new remedy brought to their attention in a proper manner, a revolution can soon be wrought in therapeutics. If all members of the society will quietly work for the furtherance of this object and themselves do what they can to find out just what the different remedies they use are really capable of accomplishing, their reports will be a guide to their committee as to which are the most promising ones to subject to a

more severe and crucial test than a private practitioner could apply. It should always be remembered that the only true test of the value of a remedy is what it will do in actual trial. To know this is no easy task. The complexity of the conditions that the scientific therapist has to face is sometimes appalling. To know that the results observed are due to the drug under observation and not to the drug plus something else, or to that something else without the drug, is a task the vastness of which but few can appreciate.

The task of fixing the status of the new remedies will be but a small part of the work of the therapeutic society if it earnestly seeks to build up a real science of therapeutics. The society must endeavor to lift it out of its present condition of empiricism to one of rationality. All phenomena hitherto properly studied have revealed the fact that they occur in some sort of definite order. The effects of drugs upon our bodies, in disease as well as in health, are subject to some definite rule or order, unless this part of nature is quite unlike those parts hitherto minutely studied. As the chemist has discovered a law of Avogadro and the physicist and astronomer a law of gravity, so the therapist should place before himself the task of discovering an underlying law to the totality of phenomena which it is his province to investigate. It is quite certain that this object can never be obtained if he refuses to investigate any remedy having the slightest claim upon his attention. Nature never gives up her secrets to minds that are biased. To discover the linked purpose of the whole we must study the whole, each part in its bearings toward every other part. Because there is a flood of new remedies is no reason why the therapeutic savant should ignore any of them. Whenever one has the power of survival in the crushing competition of our times it is usually safe to assume that it may have some merit and is therefore worthy of consideration.



# Adonidin: Physiologic and Medicinal Properties

A PLEA FOR THE EXTENSION OF ITS USE IN THERAPY

By HEINRICH STERN, Ph.D., M.D.

Professor of the diseases of metabolism, College of Physicians and Surgeons, St. Louis; visiting physician New York Red Cross Hospital; attending physician St. Elizabeth's Hospital, member American Chemical Society, American Medical Association, etc. New York City.

## PART II

### IV.—THERAPEUTICS

**A**DONIDIN, on account of its tonic influence upon the cardiac muscles, has been principally used in diseases of the heart, especially in mitral insufficiency, asystole, arrhythmia, dilatation, aortic regurgitation, and precordial pain. Instances of its beneficial action in asthmatic paroxysms, in enteric and other febrile affections, and nephritis, are on record. In edematous conditions *A. vernalis* and its glucoside have been employed with pronounced success.

The present writer has used adonidin, *per se*, and in conjunction with other drugs, in a great number of instances, and for various disorders.

In the following, a number of clinical observations are recorded in which the drug was utilized. These were especially selected to show the efficacy of the drug in conditions in which adonidin has not been commonly employed.

Case I.—S. F., aged sixty-seven; female; German; mother of two children; consulted me on October 16, 1898.

Anamnesis and subjective symptoms: Patient was always healthy and vigorous, but for the past seven months complained of languor, insomnia, neuralgic pains, hemicrania, impaired vision, shortness of respiration, anorexia, gastro-intestinal disorders, diarrhea, and loss of body-weight. An examination revealed emphysema, second heart-sound accentuated, arrhythmia, pulse hard and incompressible; abdomen bloated, liver enlarged, left kidney movable, limbs very flaccid. The urine of October 17, 1898, amounted to 2340 Cc.; showed on analysis a specific gravity of 1.009. It contained traces of albumin, some erythrocytes, leucocytes, hyaline, and granular casts.

Diagnosis: Chronic interstitial nephritis.

In the beginning of the treatment I had to rely on morphine to some extent, as the neuralgic pain seemed unbearable. In the latter part of November, 1898, the condition of the patient

became aggravated. Dilatation of the heart had occurred in the meantime. Digitalis was administered, but had to be soon withdrawn on account of its apparent intolerance by the patient. Pills of adonidin, 0.005 Gm., and extract of *cannabis indica*, 0.01 Gm., were hereafter administered. The patient improved under this medication. Early in December, 1898, *cannabis indica* was withdrawn and adonidin alone continued in pill form. The patient grew visibly stronger under the influence of adonidin, her neuralgic pains had left her to a great extent, the extreme shortness of breath occurred only at infrequent intervals, her appetite was improved, as were her gastro-intestinal disorders. There was no further loss in body-weight.

Case II.—H. I. S.; male, aged fifty-five; American; was referred to me by his physician on February 18, 1899.

Anamnesis: Family history negative; patient complained for the last nine or ten months of headache, disturbed vision, vertigo, irritability, insomnia, precordial distress, dyspeptic symptoms, constipation, and micturition during the night. Patient is the manager of a theatrical enterprise and has to develop, as such, great mental and physical activity.

An examination disclosed hypertrophy of left ventricle, second cardiac sound accentuated, arterio-sclerosis, and movable left kidney. Body-weight, 69 kilos. Morning urine (voided of late in decreased quantities): Sp. gr. 1.014. Carbamide, 1.5 per cent. serum albumin and globulin 0.15 per cent.; hyaline and granular casts. Evening urine: Sp. gr. 1.016; carbamide, 1.8 per cent., no albumin, hyaline casts.

Diagnosis: Chronic interstitial nephritis.

Treatment: Milk régime; large amounts of spring water; hydrotherapy; heart-gymnastics. Internally: Adonidin, 0.005 Gm., three times daily. Iron.

March 1, 1899: Weight, 72.5 kilos. No headache, vertigo or precordial pain; vision improved; dyspeptic symptoms and constipation had disappeared. Treatment continued.

March 9, 1899: Weight, 74.75 kilos. Great improvement of subjective symptoms. Heart action very satisfactory. Treatment, including adonidin, continued.

April 25: Weight, 77.75 kilos. Vision much improved. General appearance healthy. Treatment as heretofore. Adonidin withdrawn.

June 25: Weight, 77.75 kilos. Nocturnal dyspneal attacks; headaches, sleeplessness, vision more impaired. Urine: Albuminous (traces), hyaline and granular casts. Treatment as heretofore. Adonidin again resumed.

July 14: Weight, 78.5 kilos. No oppressed breathing during the night; headache disappeared; sleep and eyesight improved. Treatment, including adonidin, continued.

August 6: Weight, 82 kilos. Patient feels very comfortable. Urine: Sp. gr., 1.0185. No albumin, no casts. The drug exerted no cumulative action whatever.

Case III.—E. S., female; aged sixty. German, widow, two children; referred to me by her family physician on May 3, 1899.

Anamnesis: Family history negative; no lues; total abstainer from alcohol, patient for the last two years complained of lassitude, shortness of breath, anorexia, gastro-intestinal disorders, frequent micturition, failing eyesight, great loss in body-weight, chilliness on the surface, and headache.

An examination disclosed dry and grayish integument, hard and incompressible pulse, hypertrophy of left ventricle, chronic bronchitis, furred tongue, and pain in the epigastrium upon slight pressure; body-weight, 38.35 kilos.

Urine: Amount voided for the past twenty-four hours, 1850 Cc. Color, Vogel's scale No. 2; transparency, perfect; odor, normal; consistency, normal; reaction, acid, 0.43°; sp. gr., at 15.5° C., 1.016; chlorides, somewhat diminished; earthy phosphates, diminished; alkaline phosphates, slightly increased; carbamide, 1.1 per cent.; glucose, absent; serum albumin, traces. Microscopically, uric acid crystals; no casts.

Diagnosis: Chronic interstitial nephritis.

Milk regimen and some mineral waters were recommended. Thereafter weekly urinalysis was performed.

On May 27 patient had gained two kilos in body-weight, but complained of shortness of breath, and of nocturnal dyspneal attacks. Symptoms of cardiac dilatation and of slight local effusions were found; oliguria was very marked. Urine contained 4 per cent. of albumin (Esbach). The treatment was continued and an infusion of digitalis was ordered to be taken in moderate doses.

On June 3 the digitalis had to be withdrawn as patient complained of incessant vomiting, profuse diarrhea, hemicrania, pains in back and limbs, vertigo, disturbed vision, and great weakness. Adonidin was substituted for digitalis. The drug was to be taken in pill form—the dose 0.01 Gm. four times daily.

On July 8 patient weighed 41.5 kilos and felt stronger. The attacks of oppressed respiration

during the night had become much more infrequent. Shortness of breath was greatly relieved and so was cardiac atony. The dropsical swellings had entirely vanished and the urine was voided in increased amounts. Adonidin was continued in the same dose, but taken only three times daily.

On August 5 the patient's weight amounted to 42.5 kilos. She felt herself stronger than for two years past; has had no nocturnal attack of oppressed breathing for a fortnight, rhythm and tonus of heart were greatly improved. Adonidin was borne very well in this instance and showed no cumulative effects whatever.

Case IV.—H. R., male, aged fifty; German.

Anamnesis: Family history good. No lues. Patient complained for about two years of lassitude, drowsiness, nervousness, adynamia, loss of body-weight, visual defects, palpitation of heart on the slightest exertion, chronic bronchitis, frequent micturition, and constipation.

An examination on May 26, 1899, revealed cardiac dilatation, irregular and frequent pulse; bloated abdomen and pronounced emaciation of lower extremities.

Urine (May 25, evening): Color, light amber; transparency, perfect; sp. gr., 1.022; reaction, acid 0.5°; carbamide 1.7 per cent; serum albumin, traces; glucose, none. Microscopically, uric acid crystals, broad hyaline casts.

Urine (May 26, morning): Color, light amber; transparency, perfect; sp. gr., 1.0205; reaction, acid 0.45°; carbamide, 1.4 per cent.; serum albumin, trace; glucose, none. Microscopically: Uric acid and calcium oxalate crystals; hyaline, and dark granular casts.

Diagnosis: Chronic (atypical) interstitial nephritis.

In the treatment, reliance was placed upon heart gymnastics, Nauheim baths, the ingestion of large quantities of spring water, the regulation of diet, and the administration of digitalis and strophanthus.

June 24, 1899: The digitalis-strophanthus mixture had to be withdrawn on account of its untoward effects upon the system. Adonidin in doses of 0.005 Gm., together with 2 Gm. of potassium bitartrate and 0.75 Gm. of strontium lactate was substituted. This powder was to be partaken of three times per day.

July 5, 1899: Patient was greatly relieved. He felt much stronger, had gained in weight; complained no longer of lassitude and drowsiness, and visual defects were improved. The heart rhythm was regular and greatly increased in force. Pulse harder and fuller. The urine showed no albumin, but a few casts of the hyaline type. The treatment including the administration of adonidin was continued.

Case V.—F. S., female, aged thirty-six; American, married, two children; referred to me by her family physician on May 30, 1899.

Anamnesis: Family history negative; no lues. For the last three years albuminuria, progressing adynamia, paroxysmal attacks of dyspnea and of extreme asthenia; headaches, constipation, loss in body-weight.

An examination revealed cardiac dilatation, arrhythmia, shortness of breath, increased pulse tension, and edematous swellings around the ankles; rectal temperature,  $37.1^{\circ}$  C.; body-weight, 63 kilos. The urine was voided in scanty amounts, and the specimen of the evening preceding showed: Color, Vogel's scale, No. 5; transparency, impaired; odor, normal; consistency, normal; reaction, acid,  $0.39^{\circ}$ ; sp. gr. at  $15.5^{\circ}$  C., 1.030; chlorides, slightly increased; phosphates, normal; carbamide, 0.8 per cent.; glucose, absent; serum albumin, present; total albumin (Esbach), 3 per cent. Microscopically: Uric acid and calcium oxalate crystals, hyaline casts.

The morning urine offered these characteristics: Color, Vogel's scale, No. 2; transparency, slightly impaired; odor, normal; consistency, normal; reaction,  $0.48^{\circ}$ ; sp. gr. at  $15.5^{\circ}$  C., 1.024; chlorides, about normal; phosphates, normal; carbamide, 1.3 per cent.; glucose, absent; serum albumin, present; total albumin (Esbach), 0.25 per cent. Microscopically: Sodium urate, calcium oxalate and calcium sulphate crystals; leucocytes; hyaline and granular casts.

Diagnosis: Chronic interstitial nephritis.

The proper dietary was ordered and the usual tonics prescribed. Urinalysis was hereafter performed twice every week.

June 24, 1899: Patient had gained 0.75 kilos. and the urine amounted to 850 Cc. The specific gravity of the urine voided on the preceding evening had declined to 1.006, and to 1.0095 in the urine of the morning; albumin in evening urine, 0.5 per cent.; in morning urine, traces. No casts in either urine. Patient appeared rather apathetic, complained of headache, and according to description given by husband seemed to have had slight attacks of unconsciousness. Threatening uremia. Strontii lact., 1.5 Gm., and adonidin, 0.01 Gm., were ordered to be taken every four hours.

The average diurnal quantity of the urine of the next three days increased to 2080 Cc. The specific gravity was raised to 1.014. Carbamide was excreted in 1.3 per cent. in the mean; albumin absent. Headache had vanished; patient became more lively. Arrhythmia and shortness of breath greatly improved; edema had entirely disappeared. Strontium lactate was soon discontinued and adonidin in 0.005 Gm. doses, with occasional interruptions, given for some time. A cumulative action of the drug did not occur. Patient weighed 66.5 kilos. on November 26, 1899, and felt herself free of almost any distress.

Case VI.—A. A., female, aged thirty-two, American; married; mother of one child; re-

ferred to me by her family physician on August 16, 1899.

Anamnesis: Family history good, no lues, total abstainer from alcohol; patient had a severe attack of influenza some years ago; kidney degeneration may date from that time, as she felt not "like herself" ever since. She complained of extreme asthenia, languor, decrease of memory, irritability, insomnia, persistent hemicrania, anorexia, nausea, and vomiting, frequent micturition (some months ago she voided very little urine), and dropsy.

From August 2 to 5 she menstruated for the last time; at the beginning of the menstrual period her weight amounted to 67.5 kilos. On August 3 she was bloated all over the body, which greatly inconvenienced her. On August 5 all swellings had disappeared.

An examination showed: Pallor eximius, hypertrophy of left ventricle, second heart sound accentuated, eyelids and lips edematous, anasarca; body-weight, 61 kilos.

Urine: Diurnal amount, 2240 Cc.; color, grayish-yellow; transparency, slightly impaired; odor, normal; consistency, normal; reaction, slightly acid; sp. gr., at  $15.5^{\circ}$  C., 1.009; total solids, 39.6 Gm.; chlorides, diminished; earthy phosphates, increased; carbamide, 0.3 per cent.; uric acid, faint traces; glucose, absent; serum albumin, abundant; total albumins, 4 per cent. (Esbach). Microscopically: Acid urates, calcium sulphate, epithelium, leucocytes, some erythrocytes, broad hyaline, granular, and fatty casts.

Diagnosis: Chronic diffuse nephritis.

The treatment was intended for the dropsy, the heart, and the condition in general. Dietary and hydropathic measures were taken. Medicinally, digitalis in combination with acetum scillæ, potassium acetate, and sodium phosphate, was administered. The urine of September 5, 1899, offered about the same characteristics as on the previous occasion. Patient had lost consciousness a number of times since her last visit. On one occasion she was brought home having had a seizure in a street car. On that day she remained in a comatose condition nearly six hours. An examination on that date showed pronounced arrhythmia, precordial hyperesthesia, aortic regurgitation, bloated abdomen, anasarca, edema of lower extremities, furred tongue, and contracted pupils. To prevent recurrence of toxic symptoms, rigid measures were resorted to; medicinally, for heart and kidney, the following was prescribed:

Adonidin ..... 0.01 Gm.

Sodium Benzoate ..... 1.5 Gm.

Mix and make fifty such powders. One powder every four hours in a tumblerful of water.

On September 16, 1899, the symptoms were greatly relieved. The cardiac rhythm was regu-



lar, hyperesthesia of region over the heart had disappeared, anasarca and edema were greatly relieved, and pupils were normal. Her weight, notwithstanding the almost total disappearance of the dropsy, had remained stationary. The drugs were ordered to be continued. A cumulative effect has not taken place and the patient feels exceedingly well at the present day.

Case VII.—C. K., female, aged twenty-nine; Danish; mother of three children; consulted me October 30, 1899.

Anamnesis and subjective symptoms: Patient became dropsical about four months before; felt very weak, so that she could hardly walk; complained of anorexia, indigestion, vomiting, severe intercostal and dorsal pain, flatulency, shortness of breath, little micturition, and impaired vision.

An examination showed pallor eximius, anasarca, local edema, puffy face, heart slightly hypertrophied, arterial tension not excessive.

Urine: Scanty, 1.024 sp. gr., contained albumin 3 per cent. (Esbach); erythrocytes, leucocytes, tube-casts of the hyaline, epithelial, fatty, and granular types.

Diagnosis: Chronic diffuse nephritis.

Medicinally, adonidin, 0.01 Gm., and sodium salicylate, 1 Gm., were ordered to be taken three times daily.

On November 15, 1899, patient felt stronger and had developed a better appetite. The intercostal and dorsal pains had vanished. The dropsical condition had improved. The amount of diurnal urine was increased. The medication was continued. On November 21, 1899, dropsy was greatly relieved. Patient complained no longer of shortness of breath. Average daily amount of urine voided amounted to 1620 Cc. Adonidin and sodium salicylate were still continued. The glucoside was very well borne by the patient.

Case VIII.—F. W., female, aged thirty-two; American; mother of two children.

Anamnesis: Father died of Addison's disease; mother healthy; no lues. On April 13, 1897, patient had acute diffuse nephritis, originating during the course of a severe attack of influenza. The temperature rose on three or four occasions to 41.1° C. (106° F.). The pulse fluctuated between 115 and 150. The urine, on the third day of the nephritic affection, amounted to 65 Cc., with sp. gr. of 1.038. Its color was dark brown and its transparency entirely lost. Output of carbamide and chlorides was greatly reduced. Albumin occurred to the amount of 0.75 per cent. The microscope revealed uric acid crystals, erythrocytes, leucocytes, renal epithelium, hyaline, granular, and epithelial casts.

The acute symptoms disappeared, but chronic interstitial nephritis developed slowly. Patient became subject to irregular malarial attacks about a year before, but underwent no especial treatment.

On January 7, 1900, intercurring with a mala-

rial paroxysm, uremic symptoms developed. Had I not known the condition of the patient's kidneys, I would, in all likelihood, have attributed the latter symptoms to malarial intoxication. Patient was unconscious, pulse over 160. Temperature (rectal) 41° C. (106° F.). Complete anuria for twenty hours, ammoniacal odor emanating from patient.

The proper means were employed to sustain life and to produce diaphoresis and diuresis. Steam baths, hypodermic injections of caffeine, spartein, digitalin, nitroglycerin, strychnine, pilocarpine, and quinine and urea hydrochlorate were administered, and, as soon as the patient could swallow, large draughts of water were given her. Diaphoresis was soon established; the anuria, however, continued for another sixteen hours. Patient had a number of relapses into unconsciousness during this time. In the early morning of January 9, 0.01 Gm. of adonidin was injected, and soon afterwards about 50 Cc. of urine could be withdrawn. In the evening, after another injection of adonidin, about 60 Cc. more of urine could be obtained.

Following are the characteristics of the 110 Cc. of urine thus procured: Color, brownish-red, Vogel's scale, No. 7; transparency totally impaired; odor, penetrating—not ammoniacal; consistency, watery; reaction, acid 0.66°; sp. gr., 1.014 at 15.5° C. Total solids, 1.95 Gm. in 60 Cc. Deposit: Nucleo-albumin, pus, blood. Salts of hydrochloric acid, normal; alkaline phosphates, increased; earthy phosphates, normal; free ammonia, none. Carbamide traces—not more than 0.25 per cent.; urobilin, normal; uroanthin, greatly in excess; nucleo-albumins, in excess; albumin, ½ per cent.; biliary acids, absent; fatty matter, absent; pus, present; glucose, absent; hemoglobin, present; hæmatin, present (crystals); glycuronic-acid combinations, absent; alkapton-acids, absent; acetone, absent; diacetic acid, absent. Microscopic examination: Acid urates, calcium oxalate, erythrocytes, leucocytes, pus corpuscles, broad and squamous epithelial cells, epithelial, hyaline and granular casts.

The hypodermic injections of adonidin were continued until January 12. On January 10 patient voided 303 Cc.; on January 11, 768 Cc., and on January 12, 1280 Cc. of urine. On January 12 the symptoms of toxic anuria had entirely disappeared. Patient now feels comfortable, though she is still subject to the malarial poison. An examination of her blood made by me on January 21 still demonstrated the presence of the plasmodium.

Case IX.—On February 1898, I was summoned to L. P., aged sixty-one, male; German; suffered with intense precordial pain radiating to the neck and left arm. The briefness of the paroxysm, the sense of impending death, the pallid face, the voluntary silence and immobility, the

quicken respiration, pointed to true angina pectoris. This diagnosis was confirmed by the condition of the heart, as valvular disease and aortic regurgitation were found to be present. The arterial tension seemed not to be increased to any degree. Having no amyl nitrite at hand, a hypodermic injection of morphine and atropine was made at once. A 1-per-cent. solution of nitroglycerin was then administered in drop doses three times a day. About thirty hours later the patient had another similar paroxysm. Adonidin, 0.005 Gm., was injected hypodermically, with the result that the patient felt easy in about three minutes. An hour afterwards he was out of bed again. Adonidin, in small doses, was continued for some time, to prevent recurrences of attacks. On November 13, 1899, the patient had another paroxysm of angina pectoris. An injection of 0.005 Gm. of adonidin relieved him at once. Thereafter he took 0.03 Gm. adonidin daily for one week, when he, in spite of my warning, discontinued its use. The drug at no time produced any untoward phenomena.

Case X.—G. B., aged thirty-five, male; American; had a paroxysm of true angina pectoris on November 30, 1899. A hypodermic injection of 0.005 Gm. of adonidin gave speedy relief. Half an hour later patient was able to walk around his room.

Case XI.—A. H., aged fifty-eight, male; German; is subject to occasional gouty attacks of the diaphragmatic type. The paroxysms in former years were, as a rule, not of a very severe character, and yielded readily to the anti-gout treatment. Of late, however, the exacerbations had become so violent and occurred so frequently that some additional medication had to be resorted to. Nitroglycerin was prescribed in small doses for the purpose of preventing the paroxysms. In this respect the success was only a partial one, as the action of nitroglycerin was quite uncertain at times, and as its effect lasted for very brief periods only. Both these difficulties were overcome by the administration of adonidin pellets, each containing 0.005 Gm. of the glucoside. The action of adonidin proved very certain in this instance, and while no cumulative effects of it were noted, the ingestion of each tablet was followed by about eight or twelve hours of absolute easiness.

Case XII.—R. S., aged forty-seven, male; English; afflicted with esophagismus for some time. Condition on January 4, 1899: Appearance, broken down, prematurely aged; skin and mucous membrane, pallor eximius; nutrition, emaciated, somewhat cachectic; body-weight, 65 kilos.; temperature, 37.2° C. (axilla); radial pulse, 56 per minute, weak and shallow; heart, hypertrophied, systolic murmur over aorta (stenosis of aorta); esophagus, diverticulum of considerable caliber about 10 Cm. above stenosis, the latter near cardiac extremity and of a purely spasmodic

character. Organic disease positively excluded. Sound detained in stenotic area for about thirty seconds, after which relaxation ensued suddenly, permitting passage of instrument. Withdrawing the latter it was again arrested for nearly ten seconds at the stenotic portion. 200 Cc. of warm water quickly drunk was retained for twelve minutes, after which it was suddenly regurgitated; 164 Cc. of the water was caught; some water had escaped before patient reached the basin provided for the reception of the evacuated matter. The 164 Cc. plus the lost portion must have corresponded quite closely to the amount ingested; at any rate, only a minute quantity could possibly have traversed the stenotic point. The water, during its retention in the gullet, in all probability was lodged in the diverticulum.

Respiratory organs: Bronchi, normal; lungs, lower boundaries higher than normal—volume diminished; respiration frequent and very shallow; inspiration short and jerky; expiration very short, instantaneous, ceasing abruptly; diaphragm apparently high in the thorax and not moving freely, pain in upper part of epigastrium and in corresponding region on back upon pressure and manipulation.

Liver enlarged; other organs apparently normal. Urine (voided in my presence), ardor urinae; sp. gr., 1.029; acidity, 0.62°; excessive oxaluria; traces of albumin, otherwise normal. Discarding the assumption of an idiopathic origin of the affection, the stricture was treated as a symptomatic disease.

Potassium iodide was prescribed for the underlying condition. Besides this, systematic faradization of the diaphragmatic circle was instituted. After a week's administration of potassium iodide, adonidin in 0.005 Gm. doses was ordered to be taken four times a day. On January 20, 1899, a dose of this drug was increased to 0.001 Gm. four times daily. The patient was put on an absolute milk diet and the feeding by the stomach-tube—advised by a former physician—was prohibited. On January 22 patient was enabled to ingest the nutriment without the slightest effort at deglutition. On February 4 patient looked very well, and a general systemic improvement was plainly noticeable. Weight, 75.5 kilos. Adonidin, in this instance, proved itself extremely useful. It was borne well and showed no cumulative action.

The clinical cases heretofore recorded form but a small proportion of all instances in which I have successfully employed the glucoside. In certain asthmatic conditions, adonidin, administered either by the mouth or hypodermatically, gives prompt relief.

In the functional disorder known sometimes as "smoker's heart," where the heart-beat suddenly grows much stronger, indicating augmented cardiac activity as the

consequence of a toxicosis, adonidin is of great value. For the amelioration of this disorder I am in the habit of combining the glucoside in this form:

Adonidin.....	0.005 Gm.
Ammonium Carbonate....	0.1 Gm.
Camphor .....	0.03 Gm.

Mix and make thirty such powders. One powder three times daily.

## V. CONCLUSIONS

It has been the custom to regard adonidin as a mere succedaneum of digitalis. While the physiologic action of these drugs is identical to a certain degree—as, in therapeutic doses, both seem to stimulate the vasomotor center in the medulla oblongata, the cardiac inhibitory apparatus, and the walls of the arterioles—adonidin, notwithstanding its more prompt and energetic action, may be safely administered in such pathologic conditions, where digitalis, if given at all, should be administered with the utmost caution only. I refer to fatty degeneration of the heart, pericarditis, simple hypertrophy, compensatory hypertrophy, and certain atheromatous conditions.

Digitalis, on account of its slow, uncertain, and not infrequent cumulative and toxic action, was hardly ever employed in the treatment of these affections; still, a cardiac tonic, notwithstanding an apparent hypertonicity of the heart and arteries, is often called for. The tonus of the cardiac muscle may be absolutely increased and yet the energy of the heart may not suffice to overcome certain obstacles, or to perform the work required. Adonidin has given me unfailingly good results in those instances where it was imperative to assist such cardiac efforts. Hence the glucoside proved of decided value in a number of nephritic affections.

In *rapidity of action* adonidin almost equals nitroglycerin. In this respect it surpasses by far other heart remedies, as digitalis, digitalin, digitoxin, caffeine, sparteine sulphate, strophanthus, convallaria majalis, and convallamarin.

In *certainty of action* adonidin equals nitroglycerin, and surpasses by far caffeine, sparteine sulphate, convallamarin, strophanthus, and digitalis or its glucosides.

In *permanency of action*, although no cumulative effects were ever noted by the writer, adonidin surpasses nitroglycerin, caffeine, convallamarin, sparteine sulphate, digitalis, digitalin, and digitoxin.

The *diuretic action* of adonidin in *health* in medicinal doses is limited, being about equal to that of digitalis. It does not act as a true diuretic, and apparently exerts very little influence upon the arterial pressure in the normal kidney. As a physiologic diuretic it is decidedly inferior to caffeine, strophanthus, convallamarin, and sparteine sulphate.

The *diuretic action* of adonidin, in *certain affections of the kidney* and in pyretic conditions, is more pronounced, which is probably due to increased arterial tension in the renal circulation. Its greatest diuretic force is exhibited in conditions accompanied by dropsy and low arterial tension.

*Body heat.*—The action of adonidin in therapeutic doses upon the body heat is two-fold. In the healthy individual it causes a slight increase in temperature; but it tends to lower the body heat in pyretic conditions.

*Tolerance.*—There is no instance on record in which adonidin produced lethal effects in man. In a case of Durand (*op. cit.*), where 0.16 Gm. were given by mistake to a patient during a day, no injurious effects resulted. Huchard (*op. cit.*) mentions a case in which 0.005 Gm. of adonidin administered in pill form four times a day for three weeks was not well tolerated temporarily. Leublinki (*op. cit.*) related some instances in which an overdose of adonidin provoked nausea, vomiting, and diarrhea.

In all cases which came under the observation of the writer, adonidin administered in the form of powders, tablets, pills, or solutions by the mouth, or in that of suppositories by the rectum, or by hypodermic injection, was always well borne. His purpose, however, was not to determine how much of the glucoside each patient could tolerate, but how small a quantity would alleviate his condition.

The dose of the drug varies according to the object desired—0.002 Gm. administered twice or three times a day may often suffice



to overcome lassitude and asthenic conditions; 0.005 Gm., taken three or four times a day, the dose most frequently employed by the writer, corrects arrhythmia, subdues precordial pain, and, when injected hypodermatically, often relieves cardiac dyspnea; 0.01 Gm., administered in any form, three, four, or five times a day, influences the edematous condition and produces diuresis, especially in the cases characterized by low arterial tension.

So far as the present writer knows, he was the first to administer adonidin to the ill by the hypodermic method. The tablets which

were prepared for him for this purpose were by no means perfect, and superficial irritation occasionally resulted from their use, at the point of insertion of the hypodermic needle. Undoubtedly, this objectionable feature can be readily eradicated by pharmaceutical skill.

It is the writer's fond hope that this brief communication may tend to awaken an interest in a drug fully meriting recognition as a standard remedy; and he trusts that the day is not far distant when adonidin will share a place with morphine and strychnine in the physician's vest pocket.

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[Written for MERCK'S ARCHIVES]

## Urea and Uremia

By H. P. COILE, M.D.

Late Professor of Clinical Medicine, Tennessee Medical College

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UREA is not formed in the kidney, but exists in the blood and is a result of tissue disintegration. It is not improbable also that nitrogenous food, eaten in excess of amount sufficient for nutrition, is carried into the circulation current only to be rejected by the tissues and to remain in the blood until removed by the excretory organs. What changes take place in food thus prepared for assimilation, but rejected, is not altogether known; but it seems reasonable to infer that it becomes as waste or as the product of disintegration, undergoing such changes as the tissues themselves, furnishing urea and other deleterious agents to be disposed of through the emunctory channels. The amount of urea thus added to that resulting from tissue disintegration may be considerable, and may tax the kidney to its full capacity to relieve the blood of this and other harmful products. This condition may of itself predispose to structural disease of the kidney.

It appears not to have been the experience of physicians, as a rule, to note cases of uremia except where organic or functional disease of the kidney existed, or where there was some obstruction to the flow of the urine. The usual condition is a diminution of the amount of urea excreted, leading to

its accumulation in the blood because of the lack of function of the kidney. I do not remember to have seen a record of any case of uremia where the amount of urine and urea equalled or exceeded the normal. In view of this fact I am led to report what I conceive to be a rare case and one of much interest.

E. A. R., aged thirty-nine, applied to me for life insurance examination in his usual good health. The only abnormal condition found was that the specific gravity of the urine was 1.035. There was not the slightest trace of albumin or sugar. An abstemious diet was advised and a little later the specific gravity was reduced to 1.030. The patient was active and feeling fairly well. Not many days after this there was some hebetude, and during quite a long period there was a very bad taste complained of. This antedated the time of the insurance examination.

On December 16, 1899, thirty days after the discovery of the very high specific gravity of urine, the attack of uremia began, with slight fever, general aching, and profound nervous symptoms. On the second day of the attack the cerebral symptoms had deepened and functional aphasia was present in a marked degree. By the evening of the second day the aphasia was almost total. There was no paralysis of any kind. The patient rapidly passed into unconsciousness, which lasted, in some degree, for a period of three weeks, at the end of which time the condition was improved; but there was no recollection of events occurring during this period

Although he responded to questions most of the time and appeared to know in part what was going on. The degree of aphasia varied from time to time.

At the onset of the attack and throughout the disease examinations of the urine were frequently made. The quantity passed was near normal, and its specific gravity on first examination was 1.040. There was neither sugar nor albumin, and it may be remarked that during the entire progress of the case neither sugar nor albumin was found at any examination, nor was the daily amount of urine greatly reduced. During a period of three weeks the specific gravity remained as high as 1.035. It is evident that the amount of urea excreted during this time was far in excess of the average daily amount in health; but, notwithstanding this, enough remained in the blood to keep the patient profoundly poisoned, so that it was a struggle between life and death, and at times death seemed imminent. Eliminative treatment was used freely. The kidneys were stimulated to their highest activity, and saline purgatives and mineral lithia and magnesia waters freely used. When the urea had been eliminated and the specific gravity of the urine reduced to the normal, convalescence began. This was interrupted by slight overindulgence of the appetite, causing a return of the symptoms, which, however, soon passed away.

The general line of treatment has been referred to and I purposely omit details, as these are given in all first-class text-books; but one or two observations may be of value.

I am satisfied that the objections sometimes urged by physicians against the use of morphine are without good reason. In the case cited, during the most distressing attacks of vomiting and hiccups, hypodermic injections of morphine gave the greatest relief.

One line of treatment recommended by all the text-books without exception, so far as I know, I wish to mildly dissent from and give my reasons. Diaphoretics given with the view of eliminating urea are not of enough value to compensate for the depression caused by their use. When copious perspiration is produced the blood is deprived of much of its water and sodium chloride, both of which are not only not harmful but of great value to the blood. Probably little, if any, deleterious substance is taken from the system by the sweating process. We shall better appreciate this by studying the composition of the sweat. It has 995.573 parts of water per 1,000, and

sodium chloride exists in the proportion of 2.230 per 1,000 and is the principal solid ingredient. Urea exists in the proportion of 0.043 per 1,000, and is, probably, the only deleterious substance that escapes with the sweat. We find that the kidneys under normal conditions excrete about 463 grn. of urea in twenty-four hours, and that the proportion of the urea in the urine to that contained in the sweat is as 535 to 1. To present the matter in another form, the urine contains, approximately, 9 grn. of urea to the ounce, while sweat has only  $\frac{1}{60}$  grn. to the ounce. It will thus be seen that under normal conditions it is necessary to sweat the patient 60 oz. to take from the blood 1 single grain of urea. These proportions might change somewhat in pathological conditions, but not enough probably to justify a too active diaphoresis. Indeed, we very much doubt if it is of any appreciable value, and it is moreover positively harmful if pressed to the degree of depressing a patient. Far better results are to be obtained by a somewhat active catharsis; but, after all, the main reliance is upon the power of the kidney to perform its function in a degree sufficient to extract these poisonous products from the blood. The success or failure of any effort, as a rule, will be measured by the amount of structural change existing in the kidney.

When the degeneration of this organ has reached a point of being unable longer to excrete urea and allows its retention in the blood, vicarious elimination may be of value temporarily, but it will soon fail. In this condition the specific gravity of the urine will be very low, but where the kidney is little affected or remains healthy, active diuresis will result in eliminating the poison and probably restoring the patient to health.

In the treatment of an acute case, and especially in a plethoric individual, little if any food is to be given, especially of a nitrogenous character, and it may even in certain conditions be best to abstain from food altogether for a few days, for by so doing the work of the kidney is less. In uremia the blood is a polluted stream, filled with the products of destructive metabolism and unable to appropriate anything of construc-

tive value to the tissues. In this condition, therefore, it is probable that food is to the disease as fuel to the fire, and it is better to abstain entirely for a time, and then to live on a very plain diet until the blood has been freed from the urea and other products of tissue disintegration.

As alcoholic stimulants diminish the production of urea they may, in limited amount, be of value where a stimulant is indicated, on account of heart failure; but under ordinary circumstances strychnine is, as a cardiac stimulant and tonic, the best known remedy. The convalescence from acute uremia should be carefully guarded. Meat should, as a rule, be avoided for some time, or partaken of only sparingly. Light meat may be used in moderate quantity. Throughout convalescence the quantity of food taken should be so regulated that nothing is eaten that is not digested and assimilated with ease, otherwise a relapse may occur and result fatally.

Where a physician discovers a heavy urine it should attract his attention and active treatment be at once instituted. In this way an attack may be averted. It is quite probable that many cases of Bright's disease, acute and chronic, result from the accumulation of urea and other waste and poisonous products in the blood, which might have been removed had the real condition been recognized and promptly treated. In view of this, therefore, the physician should make frequent examinations of urine.

My conclusions are:

1. That acute uremia occasionally occurs without suppression of urine or obstruction to its flow, and in the absence of structural change of the kidney.

2. That acute uremia may occur while the amount of urea excreted is far above the normal.

3. That in such cases the increased amount of urea in the blood is first from rapid tissue disintegration, until the blood is badly poisoned, and then is probably increased by nitrogenous food eaten, which cannot be assimilated and which disintegrates in the blood.

4. That in the treatment of acute uremia

active diaphoresis is of little value, as so small an amount of urea is obtained that it is practically unappreciable, and the blood is thus deprived of its water and salt, which is not only not harmful but of great value.

**Insidious Iritis** (the *tranquil iritis* of Hutchinson) is considered as to its etiology, diagnosis, and treatment in a careful article by Panas.<sup>1</sup> After showing that this form of iritis usually has its origin in an endo-infection or hereditary taint, he proceeds to point out the necessity of addressing initial treatment to constitutional needs suggested by the nature of the infection. In tuberculous cases, the treatment suitable to the best management of a tuberculous patient must be undertaken at the same time that the following local measures are to be adopted. The most valuable medicine to be given internally is iodoform in 2 to 5 grn. powders disguised by powdered coffee, two a day. Intramuscular injections of  $\frac{1}{4}$  grn. of biniodide of mercury once a day is slightly less efficacious. Under these injections, whose antitoxic potency is no longer open to question, not only do the inflammatory lesions recede, but the patient gets fat and takes on color, and his general health is daily improved. The mydriatic recommended is the installation four times daily of a  $\frac{1}{2}$ -per cent. atropine and 2-per cent. cocaine solution. Eserine is not thought necessary. Along with the mydriatics hot poultices or compresses are to be used to facilitate absorption of plastic materials needed.

If the synechiae are numerous and well organized, a large iridectomy is recommended both for its anti-inflammatory action and its optical effect. But unfortunately the iris is in such cases fragile and adherent, and even increases the destructive tendency so that tension may diminish with phthisis and atrophy of the globe. Prognosis therefore to be guarded.

#### Chronic Finger Eczema:

Diachylon Ointment..... 6½ dr.

Hydrated Wool-fat..... .50 grn.

Yellow Oxide Mercury ..... 4 grn.

Use externally. —*Louisville Med Monthly.*



# The Influence of Ichthalbin on Metabolism and Intestinal Activity<sup>1</sup>

By DRS. ROLLY and SAAM

The former chief assistant at Clinic, the latter formerly assistant at the Pharmacological Institute

ACCORDING to the publications so far made regarding ichthalbin, an albumin compound of ichthyol, the remedy has been recommended in various diseased conditions. Ichthyol, the substance from which it is derived, is credited with such manifold and varied actions that an unprejudiced reader is apt to regard it with some distrust. Thus, one authority ascribed to ichthyol vaso-constrictor powers; another, antiseptic properties; and still another an excellent influence on metabolism—but these publications appeared to be inconclusive, and not based upon an exact and scientific basis.

After several trials with ichthalbin in the local polyclinic and children's clinic had given good—in some instances, surprisingly good—results, Professor Vierordt decided to have exact tests made regarding the mode of action of ichthalbin.

In order to obtain an objective basis for a judgment regarding this mode of action, there were made, on the one hand, tests respecting metabolism in healthy subjects in order to study the influence on nutrition; and on the other hand, estimations of ethylsulphates were made in subjects having intestinal diseases with increased decomposition, which were to shed light upon the changes occurring in the urine, and particularly upon any decrease in the processes of decomposition effected by ichthalbin.

## NUTRITION (METABOLISM TESTS)

In the first of these tests, it was intended to investigate the influence of large doses of ichthalbin on the albumin decomposition, since it is well known that certain remedies have a deleterious effect on metabolism, and that, in the testing of a remedial agent, it is above all necessary to know

whether the latter be harmful or not. We made investigations, therefore, beginning with small doses increasing constantly, and thus arrived at the conclusion that remarkably large doses cause no observable evil effects. After these initial tests, we proceeded to the *metabolism tests with healthy subjects*. We exhibited very large doses, 8 Gm. (2 dr.) daily, 2 Gm. (30 grn.) being given four times daily; in a second test, we gave 3 Gm. (45 grn.) daily—i.e., the quantity which we found to be a normal dose in severe intestinal catarrh.

The usual routine was observed, both series of tests extending over a period of four weeks, after a similar diet had been given for a week previously. The bill-of-fare was in both series as follows:

7 A. M.—1 cup weak malt-coffee with sugar, rolls, and butter.

10 A. M.— $\frac{1}{4}$  liter warm milk with rolls.

1:30 P. M.— $\frac{1}{4}$  liter warm milk with rolls, butter, and ham (cut into small cubes).

4 P. M.— $\frac{1}{4}$  liter warm milk with rolls.

7 P. M.—1 liter weak malt-coffee, with sugar, ham, and rolls.

Altogether there were daily given:

$\frac{3}{4}$  liter milk, 120 Gm. ham, 350 Gm. white bread, 20 Gm. butter, and 20 Gm. sugar; or,

87.17 albumin as per analyses ( $13.62 \text{ N} \times 6.4$ ).

57.53 fat	} Estimated according to König's tables in Leyden's "Handbuch der Ernäh- rungs Therapie."
255.04 carbohydrate	

In order to be able to observe a strict nitrogen-equilibrium, the individual nutritives were repeatedly analyzed as to their nitrogen contents. These analyses gave a daily mean value of 13.62 Gm. nitrogen. For the albumin contained in the ichthalbin, compensation was made during the ichthalbin period by deducting from the amount of ham a quantity of the latter equivalent to the albumin in the ichthalbin exhibited. The daily rations of nutriment were weighed by us on an accurate balance.

<sup>1</sup>From the Heidelberg University Polyclinic.—Prof. O. Vierordt, director.

Tabelle der Stoffwechselversuche

1 Versuchsperson

	Einnahme			Ausgabe			Bilanz		Körpergewicht %		Einnahme			Ausgabe			Bilanz		
	g	N		Harn-N	Kot-N	Sesamt-N	N pro die	N im Mittel			g	N		Harn-N	Kot-N	Sesamt-N	N pro die	N im Mittel	
Tropenperiode	1	13.62	12.39	1.33	13.72	-0.10	-0.09	27.00	1	13.62	-	-	-	-	-	-	-	-	+0.09
	2	12.43	1.35	13.78	-0.16	27.00			2	12.88	-	-	-	-	-	-	-		
	3	12.52	1.34	13.91	-0.29	27.00			3	12.74	0.72	13.41	+0.44	+0.09					
	4	12.35	1.32	13.62	-0.05	26.48			4	12.60	0.74	13.34	+0.23						
	5	12.40	1.30	13.70	-0.08	26.75			5	12.80	0.72	13.52	+0.15						
	6	12.16	1.30	13.46	+0.16	26.65			6	13.02	0.68	13.70	-0.58						
Morgens	7	13.62	12.39	1.51	13.85	-0.23	-0.05	26.65	7	13.62	12.74	0.71	13.45	+0.17	+0.15	+0.15	+0.15	+0.15	+0.15
	8	12.01	1.53	13.54	+0.08	26.65			8	12.88	0.71	13.59	+0.83						
	9	Jochthalb	11.55	1.52	13.07	+0.55			9	Jochthalb	12.45	0.69	13.15	+0.47					
	10	11.44	1.50	12.94	+0.68	26.70			10	11.96	0.71	12.67	+0.45						
	11	12.25	0.60	12.85	0.77	26.70			11	12.10	1.76	12.86	1.70						
	12	12.04	0.59	12.63	0.99	26.80			12	12.54	0.49	13.03	0.59						
Jochthalbinperiode	13	11.76	0.60	12.36	1.26	26.75	+1.24	26.75	13	12.48	0.49	12.97	0.65	+0.87	+0.87	+0.87	+0.87	+0.87	+0.87
	14	13.62	11.69	0.61	12.30	1.32			14	12.26	1.46	12.72	0.40						
	15	+8.0	11.90	0.41	12.51	1.11			15	13.62	12.20	0.48	12.68	0.94					
	16	Jochthalb	11.70	0.59	12.29	1.33			16	+3.0	12.39	0.47	12.86	0.76					
	17	11.50	0.59	12.09	1.53	26.81			17	Jochthalb	12.14	0.48	12.62	1.00					
	18	11.51	0.62	12.13	1.49	26.90			18	12.02	0.51	12.53	1.09						
	19	11.43	0.61	12.04	1.58	27.00			19	12.18	0.47	12.65	0.97						
	20	11.46	0.63	12.09	1.53	27.10			20	12.12	0.49	12.61	+1.61						
	21	13.62	-	0.94	-	27.10			21	13.62	12.48	0.56	13.04	+0.58					
	22	12.33	0.94	13.32	+0.30	26.40			22	12.51	0.54	13.05	+0.55						
Nachperiode	23	12.37	1.31	13.68	-0.06	26.95	-0.05	26.95	23	12.68	0.73	13.41	+0.21	+0.15	+0.15	+0.15	+0.15	+0.15	+0.15
	24	12.55	1.31	13.86	-0.24	27.00			24	12.72	0.74	13.46	+0.16						
	25	12.35	1.33	13.48	-0.14	27.00			25	12.69	0.78	13.47	+0.15						
	26	-	-	-	-	-			26	12.76	0.76	13.52	+0.10						

1 Versuchsperson

2 Versuchsperson

N-Bilanzcurve 1

N-Bilanzcurve 2

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The urine was collected daily up to 7 A. M. on the following day, and immediately analyzed for nitrogen. The time from which the feces was examined was controlled by charcoal, instead of cheese, because the latter, which had heretofore been used in metabolism investigations for timing the feces resulting from the medication, had frequently caused diarrhea. The feces were mixed with alcohol, evaporated to dryness, finely powdered, and then analyzed.

The investigations were carried out with two Heidelberg boys, thirteen years of age, both being found healthy after careful examination. They were under constant supervision, and both equally occupied in the clinic, which explains the remarkably small variation in the daily metabolism.

The tests proceeded normally, and are to be considered as entirely satisfactory, as both subjects retained the nitrogen-equilibrium that they showed before and throughout the period of observation. Coincident with the action of the ichthalbin, which becomes visible on the third or fourth day, *the excretion of nitrogen in the urine becomes less*. On the fourth day in both cases the quantity of nitrogen in the urine had fallen a whole gramme; i.e., under the influence of ichthalbin there are daily about 6.4 Gm. less of albumin used up than ordinarily (96 grn.). From the fifth to the sixth day a second effect is noted; there is *a better utilization of the food albumin* by the intestines, as the fecal nitrogen content falls from 1.5 to 0.6, and from 0.8 to 0.5. Just as with the general organism, so are also the intestines seemingly strengthened and enabled to exert a more vigorous digestive action. The utilization of the ingested albumin (a mixture of cows'-milk, meat, and plant albumins) is, during the ichthalbin administration period, higher than has yet, so far as we are aware, ever before been observed. A certain quantity of fecal nitrogen is derived, as is well known, from the intestinal secretions.<sup>2</sup>

This increased albumin intake is not added to the body at once, but in the course of a few days; after this the excess of the

albumin is burned up in the blood circulation, so that it is eliminated as urinary nitrogen as is always the case, it is known, when large quantities of albumin are ingested. (Sudden rise of the urinary-nitrogen curve on the fifth day.) Only after five more days does the albumin-saving power of ichthalbin also retain the excess of food-albumin taken up by the body. About ten days after the beginning of the ichthalbin medication the highest point of effectiveness is reached, so that the daily nitrogen-balance shows an average of +1.54 and +1.02 respectively.

After suspension of the ichthalbin, the balance sinks rapidly again to the normal nitrogen equilibrium.

From these two tests, there is seen to be *a decidedly favorable influence exerted by the ichthalbin on the metabolism*, similar to that observed by Zülzer and Helmers in their metabolism experiments.

The children, who during the entire period preceding treatment (altogether two weeks) had been satisfied with their nourishment, repeatedly complained of hunger soon after the exhibition of the remedy, and would eagerly have taken increased rations; this was also observed in a number of the other clinical cases which had been treated with the remedy in a similar manner.

Our first subject lost 350 Gm. (12 oz.) in weight during the period preceding treatment, but, during the ichthalbin period, with constantly uniform nourishment, he gradually gained 450 Gm. (15 oz.). The weight of our second subject was not taken daily, but only at the beginning and end of the various periods. During the period before treatment 200 Gm. (about 6½ oz.) were lost; during the ichthalbin period, 500 Gm. (over 16 oz.) were gained. After the conclusion of the trials, both boys were kept two weeks longer in the clinic, some ichthalbin being given them, but no restrictions placed on the quantity of food desired by them. *During these two weeks, both boys gained in weight 1,500 Gm. (over 3 lbs.).*

In subject No. 1 we estimated the sulphur in the urine and feces as well as the nitrogen in order to gain an insight into the

<sup>2</sup>See Rieder, *Zeitschr. f. Biol.*, 11, 1884, p. 378.



ichthalbin resorption. It appeared that all the sulphur contained in the ichthalbin is absorbed, and eliminated via the urine.

INTESTINAL FERMENTATION (ESTIMATIONS OF ETHYLSULPHURIC ACID)

According to the precise investigations of Baumann,<sup>3</sup> the quantity of ethylsulphuric acid in the urine enables a direct conclusion to be drawn regarding intestinal fermentation. In these investigations, however, it is necessary to see that the bowels are kept uniformly constant, as Morax has shown that calomel does not act as a disinfectant in human beings, but only as a purgative, and thus clears out the intestines, whereas tests made on dogs showed that in large doses it suppressed intestinal fermentation, and, in consequence, the quantity of ethylsulphuric acid also.

A large number of substances have already been examined by the Baumann method respecting their disinfectant action on the intestine, but almost all have been found to possess little or no action—among these, for instance, being salicylic acid, bismuth salts, dermatol, etc. The fermentative processes were found to be distinctly reduced, however, by iodoform, menthol, and Cr  d  s actol. Of iodoform and actol, the effective quantities are much too large to make these substances therapeutically eligible. In reference to this see Mose's paper,<sup>4</sup> which also gives a r  sum   of the literature on the subject.

Similar investigations have not yet been published respecting ichthyol. We considered it, therefore, important to carry out such investigations with ichthalbin, because a number of cases observed by us clinically, as well as the favorable influence observed by Homburger<sup>5</sup> in eczema in children, appeared to point to the lessened intestinal fermentation effected by the ichthalbin for the effects obtained. The accompanying tables and curves embody the results of our four investigations. We selected for the purpose severe cases of chronic enteritis. The bowels remained practically unchanged during the investigation period,

and during this time the food given was always the same.

��therschnellosecurve				Bestimmungsgang			
Versuche 1 u. 2. Marxzell		Versuch 3. Fiesher		Versuch 4. Baumann		Versuch 5. Fiesher	
		Tag		Tag		Tag	
Vorlage		12 6		21 6		21 6	
		0.3476		0.1035		0.1484	
		0.2980					
1. Ichthalbin		14 6		25 6		25 6	
periode		0.1680		0.1453		0.1453	
3.0 periode		15 6		26 6		26 6	
		0.0900		0.1504		0.1504	
3.0 periode		16 6		27 6		27 6	
		0.0791					
Ichthalbin		17-22 6		28 6		28 6	
ausgesetzt		—		0.1126		0.1126	
		23 6		29 6		29 6	
		0.2651					
		24 6					
		0.1612					
2. Ichthalbin		25 6					
periode		0.1860					
		26 6					
		0.1360					
		27 6					
		0.0953					

��therschnellosecurve															
1 u. 2. Marxzell								3. Fiesher				4. Baumann			
0.35	1	3	5	7	9	11	13	15	17	19	21	23	25	27	29
0.30	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
0.25	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
0.20	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
0.15	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
0.10	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
0.05	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
0.00	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
17. Ichthalbin ausgesetzt								18. Ichthalbin				19. Ichthalbin			

The first and second tests were made on a patient who had had stubborn diarrhea, cough, etc., for three years, and the symptoms had become aggravated during the last two weeks. This case was considered clinically as a severe catarrh of the small and large intestines, with a suspicion of tuberculosis, but yet no bacilli were found in the dejections or sputa. The influence of ichthalbin on the intestinal fermentation was tested in such a manner that on the two days previous to any administration estimations of ethylsulphuric acid were made, and then 3 Gm. (45 grn.) of ichthalbin given daily for three days, during which period the estimations of ethylsulphuric acid were similarly made. A pause of one week was then made, and another similar experiment carried out again on the same patient.

The other two cases were patients affected with chronic enteritis and with tuberculous peritonitis. In these cases only one ichthalbin period was introduced, and during this period, as well as on the day both preceding and following it, the es-

<sup>3</sup>Zeitsch. f  r physiol. Chemie, 1886, p. 123.  
<sup>4</sup>Zeitsch. f  r physiol. Chemie, 1897, p. 160.  
<sup>5</sup>MERCK'S ARCHIVES, I, No. 6, p. 250.

timations were carried out also. As may be seen from the table, *the quantity of ethylsulphuric acid was promptly reduced, in all four tests, on using the ichthalbin*, the reduction within three days amounting to one-third to one-fourth of the original value, only to increase again on suspension of the remedy.

This demonstrates very completely that during the short period of observation (three or four days) the fermentative processes were not permanently checked, but that during the ichthalbin-period they were so reduced that the quantity of fermentation products absorbed was very small. Only following a longer continued exhibition of ichthalbin could a permanent improvement or cure of the catarrh be obtained in many cases, as the history of the cases treated shows. Notwithstanding, as these cases have shown, that the quantity of ethylsulphuric acid is rapidly reduced by ichthalbin, the dejections still retained their fetid character, even in the case of other patients also—a fact it is difficult to explain, particularly as the clinical results were throughout eminently satisfactory, as the histories of the cases will later on show.

It is to be regretted that it has not been possible to carry out estimations of ethylsulphuric acid in a still larger number of suitable cases. The concordance exhibited by the four tests made, however, appears to prove that a lessening of the intestinal fermentation is attained as promptly by the use of ichthalbin as by iodoform, or, in another sense, by calomel. It is extremely desirable that similar tests be made by others, in order to enable a conclusion to be drawn that will possess general value. Were such tests also to agree with ours, then *calomel could be replaced by ichthalbin in all those cases of children's diseases where a purgative effect is not at the same time desired.*

The ichthalbin, above all, possesses the important advantage over calomel that it may be given for an unlimited period, because it does not weaken the patient by causing diarrhea, as calomel generally does.

## Intestinal Antisepsis in Typhoid Fever

At a recent meeting of the Medical Section of the College of Physicians and Surgeons of Philadelphia, Dr. J. M. Anders,<sup>1</sup> professor of the practice of medicine in the Medico-Chirurgical College, of Philadelphia, read a paper on the much vexed question of the benefits to be derived from the use of antiseptics in typhoid fever. With Professor Osler he held that typhoid fever "is no more primarily an intestinal disease than is small-pox primarily a cutaneous disease," or lobar pneumonia solely a disease of the lungs. He did, however, hold that the seat of the principal infection is in a majority of cases the intestinal tract. He does not believe that the antiseptic treatment deserves to be ranked as a specific method. The effort to destroy the Eberth bacilli by intestinal medication he deemed futile, and held that the claim that typhoid fever could be aborted in this manner sadly needed confirmation. He believes that the great advantage in using intestinal antiseptics in this disease is that such treatment checks the meteorism and decomposition going on within the tract. During an attack of typhoid fever the normal antiseptic fluids in the intestines, and particularly the bile, are present in diminished amounts owing to defective hepatic secretion. There is also a diminution of the amount of antiseptic hydrochloric acid secreted, which normally inhibits putrefactive changes. If milk is the chief diet of such patients he would advise the use of HCl in small doses after each feeding in all cases where meteorism is a pronounced symptom. In robust patients having typhoid fever he advises the use of calomel for the first few days, as it is a good hepatic stimulant and a disinfectant of the gut. It removes decomposable and decomposing material, thus placing the bowel in a favorable condition for the subsequent maintenance of antisepsis. The author had repeatedly observed that such an employment of calomel was followed by a milder course of the disease than is ordinarily en-

<sup>1</sup>*Therap. Gaz.*, XXIV, p. 219.

countered. For years he has adopted the habit of giving intestinal antiseptics through all cases of typhoid fever that are severe. In doing so the author does not believe that he lessens the quantity of typhotoxin supplied to the circulation. The bacilli harbored by the walls of the ileum or those that have gained access to the blood, the mesenteric glands, gall-bladder, etc., cannot be affected by anything passed through the intestines. Some of the toxins of the intestinal canal result from the virulence of usually harmless organisms, whose habitat is the intestine. Presumably these toxic substances are absorbed from the tract and add to the gravity of the situation. A rational indication for treatment under these circumstances is to either neutralize in or eliminate from the intestinal canal these toxic substances. Perhaps the most efficient agent, and one that is free from all objection, is water. The free use of water tends to cleanse the gastrointestinal tract, besides increasing elimination of the typhotoxins and other retained substances through the kidneys—the principal channel through which nature aims to effect their excretion.

It is a matter of common observation that moderate constipation in typhoid fever is favorable, and is attended with less meteorism than is met with in cases showing even moderate diarrhea.

Because of this the author does not believe in recommending laxatives in any other than the early stages. He says that numerous advocates of the purgative treatment are to be found. Their claim that it rids the intestines of the typhoid bacilli and their toxins is absurd, in view of the fact that most of the bacilli, as intimated before, soon pass beyond the reach of purgatives. Osler contends that they are not indicated, "as it is not likely that the typhoid bacilli multiply and develop their poison to any extent in the intestinal contents themselves."

Saline laxatives given in divided doses until evidence of their action is obtained can cut short intermittent forms of the fever which, he thinks, are due to secondary bacterial invasion from the intestinal tract.

In such cases this kind of laxative is valuable. Where diarrhea in typhoid is due to the irritation of an overabundance of food the system cannot take care of, here again laxatives are indicated. The author hopes that none of his statements regarding the benefits of cathartics and antiseptics will be taken as an endorsement of the Woodbridge system which, he says, is "a method that should be mentioned only to be condemned." He then goes on to say that intestinal antiseptics have a limited sphere of usefulness, exerting as they do a favorable effect upon some of the intestinal features, particularly tympanites; they also exercise a mitigating influence upon the diarrhea when present. The latter symptom, however, does not furnish an indication for their use unless the number of stools exceed three or four daily. The bowel antiseptic that he has employed for many years is salol. While this drug has a marked symptomatic influence, it is questionable whether complete antisepsis of the intestinal canal is accomplished by its use, and the same may be said of the remainder of the aromatic group—naphthol, benzo-naphthol, and naphthalin. The dose of salol in cases of average severity is 3 grn. every three hours. When the indications are urgent, as much as 2 grn. every hour may be employed for a short period, or until the urine is perceptibly tinged. It is best to use the drug in powdered form, as he has seen compressed tablets pass through the gut unchanged. In cases in which marked distention of the bowel is present as a symptom of the typhoid state, turpentine is to be preferred; it is an efficient antiseptic and also exercises a stimulating effect upon the circulation and the secretions. White turpentine is the preferable preparation, and may be administered in doses of three to five grains every three or four hours.

For the constipation which is sometimes present throughout the entire course of the disease, he has found an enema of soap-suds given every second day to be followed by the best and speediest results. In a few instances he has practiced intestinal irrigation, with a view to diminishing absorption of toxins from the rectum and colon. This



method is not to be thought of in cases in which the principal lesions are in the small intestines with moderate tympanites. On the other hand, in a considerable proportion of the cases the ulcerative process is largely confined to the colon; there is marked tympanites due to overdistention of the colon, and an active diarrhea, sometimes of a dysenteric character, or involuntary discharge of the feces may occur. In these cases intestinal irrigation, judiciously and cautiously carried out, tends to sweep from the bowel both decomposable material and a variety of resultant toxic products. Doubtless the accompanying catarrhal inflammation is decidedly benefited by this method of treatment. On the mode of administration will depend largely the success of this method.

He advises the use of only warm solutions gently introduced at low pressure through a soft rubber rectal tube connected with a fountain or other syringe. A quart of the solution should be introduced and the antiseptic used should be salicylic acid or corrosive sublimate. The former should not exceed one-half of one per cent. nor the latter 1 : 6000. Three times a day is usually sufficient for such irrigations, but in bad cases every fourth hour is better.

## Treatment of Gonorrhea in Women

A SUMMARY of the most recent lines of treatment of gonorrhea in women has been drawn up by Dr. John G. Clarke, Professor of Gynecology in the University of Pennsylvania.<sup>1</sup> He says that concerning the treatment of this infection there are two opposing views, the one holding that no local treatment should be used, and the other that active germicidal treatment is indicated from the very start. Those holding the first view fear that local applications are apt to carry the gonococci from the lower to the higher genital tract, thus leaving the patient worse off than if no treatment had been used. Neisser, the discoverer of the gonococci, claims that the moment the infection is detected active germicidal treatment should at once be used. Bumm ad-

vises absolute rest for the patient, as any active movements of the body as in walking carries the infection from the primary seat to the upper genital tract. During menstruation particularly should the patient be kept in bed, as then the spread of the disease is much more certain to occur. In treating gonorrhea cleanliness is the first desideratum, and Dr. Clarke says is the only measure upon which special stress should be laid. The introduction of douche nozzles into the vagina and urethra of acutely infected individuals suffering with considerable purulent discharge limited to the external opening of the urethra and vulva he says is unquestionably reprehensible unless very carefully conducted by a trained nurse or by the physician himself. To place these remedies in the hands of the patient he holds to be very dangerous, simply because, as ordinarily carried out even by very intelligent individuals, the vaginal douche may be the means of transporting the gonococci from the vulva to the cervix. Above all things to be avoided in gonorrhea is this extension, for if the micro-organisms once gain access to the uterus we may in the natural course of events look for a prolonged and possibly a chronic course of the disease, which sooner or later terminates in pyosalpinx and more or less extensive perioöphoritis and pelvic peritonitis.

In rare cases in the adult the injection of warm water, or a 1 per cent. solution of ichthyol, as advised by Bumm, with daily sitz baths and cleansing of the outer genitals with a 1:1000 solution of bichloride of mercury may be advised.

For the treatment of the secondary eczema of the adjacent epidermis wool fat or a mild fatty ointment, to which some simple astringent is added, is of service.

If at the end of four to six weeks the infectious process passes over into a subacute stage in which the hyperæmia of the mucous membrane increases and the secretion becomes of a slimy, milky consistency, then, according to Bumm, local applications may very successfully be instituted. As in all conditions which are difficult to treat, so in gonorrhea innumerable remedies have been suggested, some of

<sup>1</sup>*Am. Jour. Med. Sciences*, CXIX, p. 436.

which have proved of value, but the great majority have been absolutely ineffective.

According to Bumm, the remedies which are based on bacteriological experiment for their inhibiting effect are absolutely worthless in the treatment of subacute and chronic cases. The closest possible knowledge of the localization of the infectious process and a systematic microscopical control of the case are necessary. As all healing occurs through the natural reaction of the infected tissues the author believes the chronic cases to be the most unfavorable ones for treatment. They tend to become localized and frequently small infected areas will be overlooked, and a patient may be pronounced cured who is still capable of transmitting the infection. In treating acute urethritis, as it is self limiting, no injections should be employed, but if it runs into a subacute form, silver nitrate 1:1000 solution, or ichthyol, 1:5 to 1:100, injected into the urethra, is frequently very efficacious. Unless great force is used in injecting there is little danger of the fluid reaching the bladder, and even should it do so no serious trouble will be caused. The use of ichthyol in the treatment of gonorrhea is comparatively recent, but the author declares himself sure that it will appeal to all as thoroughly rational who have had occasion to use it for superficial inflammatory conditions. Neisser, after having thoroughly tested the value of the various silver salts, has at last, Dr. Clarke says, settled upon ichthyol as being superior to all other remedies. In this opinion he tells us Neisser is sustained by Jadassohn and Bumm. Jadassohn has also very strongly advised the use of argonin, a silver preparation, in 1 or 2 per cent. solution, which has the advantage over the usual silver salts in that it does not produce irritation. The older remedies, such as the copper, zinc, and lead salts, are much less employed than formerly, because they have been superseded by remedies which act more efficaciously and with less danger of disagreeable sequelæ. Balsam of copaiba, although having no special germicidal power when used internally, is nevertheless commended most favorably on empiric grounds. Re-

sults from its use have proven good. In chronic urethral gonorrhea the endoscope should be used to locate the inflamed areas which may then be treated with a 20 to 50 per cent. silver nitrate solution, or with a galvano-cautery. By means of the latter instrument the chronic areas of infection are effectively destroyed and are replaced by a healthy granulation tissue.

In the topical treatment of the vulva and vagina a 1 to 10 per cent. silver nitrate solution applied through the speculum is of great value. Under its effects the reddening and swelling frequently disappear very rapidly. When the follicular areas of the vulva or Skeen's glands are inflamed, the galvano-cautery may be employed.

In the treatment of inflammation of Bartholin's gland, hot applications may sometimes be of service, but, as a rule, complete extirpation is advisable, for when the gland once becomes the seat of chronic infection it will not, as a rule, give way to any form of treatment, but persists as a source of continued infection.

As has been indicated, when gonorrhea once gains access to the uterus it is exceedingly obstinate in its course, and may continue for years without any tendency to self-cure. It is sometimes a difficult question to determine whether the cervix alone or in conjunction with the entire uterus is infected. If there are no symptoms pointing to infection of the fundus uteri, treatment should be directed alone to the cervix. To this end the os uteri should be well dilated, and it may be necessary in nullipara to make a bilateral discission. After having thoroughly cleansed the mucous membrane, silver nitrate in 1 to 5 per cent. solution should be applied until the mucous membrane becomes overlaid by a white coagulum. Ichthyol in 5 to 10 per cent. solution may also be applied on cotton or on a small strip of gauze, and left *in situ* for many hours. This is perhaps one of the best remedies.

If this line of treatment is patiently carried out, a cure in the majority of cases may be effected; but unfortunately it is at best slow, and both patient and physician may lose courage and give up the attempt. If

good results are not effected in this way and gonococci persistently reappear in the secretions or when the symptoms of endometritis become so prominent that one is forced to the conclusion that the uterine cavity is generally infected, local treatment of the fundal endometrium may safely be begun. This, however, should be carried out with the greatest precaution, for it is very easy to cause a transference of the gonorrheal process from the uterus to the tubes—a yet more serious involvement.

When, notwithstanding the greatest care in the treatment of the endometritis, or in the natural course of the disease, the infectious process passes over into the tube the treatment should consist of absolute rest in bed, cold or hot applications to the abdomen, careful regulation of the bowels, and light diet. Rest during the acute infection is one of the chief points in the treatment. Notwithstanding the fact that the symptoms may disappear and the patient may be relieved completely of pain, she should not be allowed, even though importunate in her petitions, to at once get upon her feet, for the infectious process may again become active.

Bumm states that when the tubes become acutely infected the patient should remain two months in bed, and should only be allowed to get up after the pain has ceased and the temperature has been normal for a month. The wider our experience in tubal infections becomes, the more we are convinced that even pyosalpinx, when properly treated may subside and leave the patient well; but the tissues and organs cannot be restored to normal, and so the majority of such cases remain sterile.

After the gonorrheal process has invaded the tubes all forms of uterine treatment should be stopped or conducted with the greatest caution. To avoid possible danger it is unquestionably better to err on the side of not treating at all than to carry it out too vigorously, with its attendant danger of increasing the disease of the tubes. When the tube is converted into a pyosalpinx and persists, notwithstanding its careful conservative treatment, operation must be advised.

The treatment of gonorrhea during pregnancy consists in the maintenance of absolute cleanliness, for to attempt to institute curative remedies at this time is fruitless. Vaginal irrigations should be given daily, but according to Bumm should be stopped about one week before the expected confinement. On account of the dangers of infection of the child's eyes during parturition, the most vigorous means should be employed to prevent this serious complication. Irrigations after labor has begun and the greatest care in the treatment of the infant's eyes immediately after birth are the best prophylactic means for the prevention of ophthalmia neonatorum.

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### Tuberculins and Their Use

In a recent symposium on Serumtherapy before the New York County Medical Association, Dr. E. A. De Schweinitz, dean of the Columbian University Medical School, Washington, D. C.,<sup>1</sup> gave a résumé of the results so far obtained in the use of the "old" and the "new" tuberculins. In order to make clear the difference between the two he gave their respective methods of manufacture, after which he proceeded to present the pros and cons concerning their therapeutic values. Of the old tuberculin he said it was scarcely necessary to refer, as clinical experience had not confirmed the experimental results of the first investigators. The results of Kitasato on guinea pigs had not been confirmed, but the author thought that this lack of confirmation may perhaps be due to a difference in the method of treatment followed by Kitasato, and that which has since been used by others, and perhaps also to a lack of patience on the part of the operators.

In a paper read at the Tuberculosis Congress in Berlin, in May last, Brieger, the chief of staff in Koch's laboratory, one who has had much to do in connection with tuberculin work, asserted that the old tuberculin was not without value; that the disappointing results were due largely to the individuals who used it and to a lack of care in selecting the cases to be treated. Many cases could be cited in which, according to

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<sup>1</sup>*Jour. Amer. Med. Assoc.*, XXXIV, p. 898.



the different doctors, good results had been secured by the use of tuberculin, and just as many cases in which bad results were obtained.

One author, Feigel, in 1891, claimed that the injection of tuberculin caused an injurious influence on the life of the tubercle bacilli. He noted a characteristic change in the appearance of the germ in the animal after treatment with tuberculin, a shrinking of the germ, which became thinner and more thread-like in form and less easily colored and finally entirely destroyed.

Dr. McCall Anderson, professor of clinical medicine in the University of Glasgow, calls attention to several cases in which he has used tuberculin with considerable satisfaction. He also emphasizes the point that in treating tuberculosis it is always necessary to remember that we have not only the tubercle bacillus itself to fight, but must also take care of the soil on which the tubercle germ grows. The best attention must be given to the nutrition of the patient. Dr. De Schweinitz, after reviewing the evidence in the case, finally concludes that the old tuberculin has a decided curative action for lupus, is a valuable diagnostic agent both in animals and man, and that it should be used very much more extensively than heretofore in diagnosing incipient cases. He holds that the results reported by Beck in which accurate diagnoses in 1154 difficult cases were made by its use certainly warrant the belief that tuberculin should always be used in skillful hands in diagnosing tuberculosis, and further, should always be used in determining whether the disease has been arrested or cured.

In the growth of the tubercle bacilli some readily soluble substances are produced in small quantities, and experiments being conducted under the direction of the author as biochemist of the Department of Agriculture indicate that this readily soluble product is perhaps one of the most important in the beginning of the disease and in causing the secondary changes which are probably incorrectly attributed to the action of foreign microbes. He and Dorset have described the isolation of a substance from

tubercle bacilli which in very minute quantities produces congestion and necrosis of tissue such as is characteristic of tuberculosis. Auclair has described the effects on guinea pigs of an ethereal extract made from tubercle bacilli and shown that it causes similar congestions, necrosis, and even secondary pneumonia such as tuberculosis gives. This ethereal extract is believed by the author to be the same specific substance which he had previously described. By injection of the substance he has isolated, the same results have been found to occur as described by Auclair as happening with his ethereal extract. The author believes that the tubercle bacilli by aid of this substance which they secrete are able to protect themselves from the action of the leucocytes and render the surrounding tissue suitable for their own further development. He therefore holds that the problem of proper treatment in tuberculosis is the neutralizing of this substance. To destroy its deadly effect on the tissues and on the leucocytes is to give free scope to the natural resisting power of the animal cells. To have the cells acquire immunity against it is to enable them to successfully continue the battle against the further action of the bacilli themselves. The "new" tuberculin known as T. R. may contain this necrotizing substance in very much smaller quantity than the old tuberculin, or may be entirely free from it, depending on whether virulent or non-virulent germs have been used for its preparation. This being the case, we might naturally expect different results from the use of T. R. than from the use of the old tuberculin, in producing immunity in animals and men.

Samples prepared from non-virulent germs would necessarily give good results, while those prepared from virulent would give bad results. This would, therefore, account for the different reports had from equally competent observers. The tuberculin lacking uniformity of composition, some samples containing the necrotic substance and some not, could not be expected to give uniform results.

Babes and Proca note that if virulent tubercle bacilli are extracted with the

serum from the animal that has been treated for a long time with tubercle cultures, a serum supposed, therefore, to contain antitoxin, the extracted bacilli will be found to have lost much of their virulence for guinea pigs. The serum has apparently neutralized some of the poisons of the germ. The experiments which the author has carried on for several years in endeavoring to produce a serum which might have curative properties for tuberculosis have been based on the idea of securing a serum which might have antitoxic or neutralizing properties, for at least the most dangerous of the poisons produced by the tuberculosis germ. He has injected his serum animals, therefore, with a solution of the germ poisons as free as possible from the fatty matter of the germ. Only after *several years* of treatment has the serum from these animals shown some apparent neutralizing and curative properties. The length of time required for the treatment of the animals should be specially noted. An English writer has also recently called attention to this point.

Serum from the Washington laboratory has been used in the Loomis Sanatorium and also been tried elsewhere. The results, reported by Dr. Stubbert, are certainly encouraging. While it is difficult always to say how much of a given improvement is due to climatic conditions, and how much to special treatment, the fact that patients who have been apparently cured with serum seem to remain in better condition than others not so treated would indicate that the use of the serum has been of value. While the serum treatment of tuberculosis must be regarded as in the experimental stage, it is well deserving of further study.

It seems, therefore, that the results obtained with the old tuberculin and T. R., and a careful study of the poisons of the tuberculosis germ, indicate that in incipient stages the disease may perhaps be arrested and immunity secured by injecting the products of the bacilli freed from the necrotic principle, or by treating the patient with a serum which will neutralize the necrotic poison and a subsequent use of the products of the bacilli free from the necrotizing

agent. A solution of these poisons free from the necrotic principle may be obtained from *attenuated cultures*.

In any method of treatment it must always be remembered that we can at present hope to neutralize only certain of the poisons of tuberculosis germs, and that the natural immunity and resistance of the animal cell must be relied on for assistance. Therefore the best of nutrition in addition to scientific medication is absolutely necessary.

### Creosote

IN tuberculous affections creosote has been extensively tried, but in intestinal fermentations, severe diarrheas, chronic constipation with periodic headaches, bronchitis and whooping cough, its usefulness appears to have been sadly overlooked. Dr. F. C. Test,<sup>1</sup> of Chicago, gives some clinical observations of his own of its use in these affections that are well worthy of careful attention by the profession. He thinks that as a remedy creosote does not yet seem to be as generally appreciated and employed as its properties warrant. It is not as thoroughly worked out in regard to its physiological action as many remedies of much later introduction, if we may judge from the space allotted to it in the average text book. It is briefly set down as a rather caustic antiseptic, which in small internal doses manifests its chief effect on mucous membranes, where it exercises a varying sedative action on the terminal nerve filaments, while at the same time it stimulates the glands, by which it is eliminated, rendering the mucus more or less antiseptic, according to the amount of the drug ingested. Popularly, the author says, it has come to be largely regarded as limited in usefulness to the treatment of pulmonary tuberculosis with the occasional administration of minute doses for the relief of obstinate nausea and vomiting. On the contrary, its scope is much wider, as has been shown of recent years by the use of it or its derivative, guaiacol, in typhoid fever, and more lately still, by the prominent place accorded it in the newer treatment of pneu-

<sup>1</sup>New York Med. Jour., LXXI, p. 128.

monia. It was its employment in other cases, wherein it was thought it might prove beneficial, that led to the formulation of the author's paper.

A variety of conditions was treated, those being chosen that seemed to require internal antiseptics. Among others, the condition of intestinal indigestion, with its resulting fermentation so frequently encountered, and which so often offers stubborn resistance to treatment with carefully limited diet, digestive extracts, and various antiferments, was found to afford an excellent field for the use of creosote.

The first case given was that of a young married woman of twenty-seven years, with digestive disturbances of several years' standing. There was intestinal fermentation and flatulence, with frequently intense occipital headaches. The only relief she could get was from overcoming the constipation. The condition was finally aggravated through a surgical operation, when most serious hyperemesis, intestinal paresis and fermentation were set up by the anesthetic. All sorts of treatment were tried with only slight relief. After six weeks the patient began taking 2-min. doses of creosote after meals, thoroughly mixed with a preparation of malt for palatability, and in order to minimize its irritating quality and to insure its absorption. The action of the drug was surprisingly prompt, a decided remission of the fermentation following the third dose. At the end of the third week there was scarcely a trace of fermentation present. The improvement induced the patient to stop the treatment, but after a few days her trouble reappeared. It, however, again yielded to the creosote, which this time was continued longer. Now the patient, in spite of constipation, is free from headaches and fermentation and the constipation itself is lessening.

The author's second case was a single young woman twenty-five years old, giving a history of intestinal fermentation and flatulence of three months' duration, associated with severe occipital headaches and moderate constipation. Various lines of treatment had bettered the constipation, but left the headaches and fermentation. Two-

minim doses of creosote for two weeks checked fermentation, and after four weeks treatment was stopped, without reappearance of the fermentation and with only infrequent and very light headaches. Since the amount of creosote taken was small, it is probable that its action was largely direct, for, as its elimination after absorption is from all mucous membranes, and the kidneys as well, only a small part of the amount ingested would find its way to the intestinal mucous glands.

The third case described was a school-boy fourteen years old, who three years before was attacked with epilepsy of the *grand mal* type. His attacks lasted from five to thirty minutes. Intestinal fermentation was present. He had been under treatment with digestives, the bromides and other sedatives for months, but his flatulence and attacks persisted. Creosote was given in doses of two minims four times a day, thoroughly mixed with malt. The sedatives were also continued. Two weeks later an attack occurred, but lasting only half a minute, and without the appearance of flatus. The creosote was continued two months, with the subsidence of the intestinal fermentation and freedom from further seizures. Shortly after stopping it a brief attack occurred, but the case remains much improved, with fermentation and flatus absent, and the seizures much less frequent.

The clinical aspects of this case forced the view that the renewed attacks were largely due to gastro-intestinal disturbance, as so often is the case, and the creosote improved the condition as none of the previous medication seemed able to do. That feature being eliminated, the bromides were enabled once more to gain control.

The fourth case was a little girl aged eighteen months suffering with severe diarrhea of four days' duration. The bowels were moving seven to ten times in the twenty-four hours, and vomiting occurred three or four times a day. The stools were liquid and greenish and expelled with more or less flatus. Antidiarrheal treatment was tried three days, but without relief. One minim of creosote in malt was given every three hours. In a week the diarrhea and



fermentation had been entirely overcome, and the stools were practically normal. As a little cough lingered, the creosote was continued some days longer, for its effect on the bronchial mucous membrane. When seen two weeks later, the cough was absent, the color and appetite were good, and the bowels regular. At the end of two months, when observation ceased, the patient was thriving and had gained five pounds in weight.

The fifth case was a boy of six and a half years. Patient languid, with history of almost daily headaches, more severe since an attack of measles two months before, and often associated with a slight rash. Chronic constipation, with frequent flatulence and poor appetite, were present. To relieve the evident self-intoxication calomel was given, but with only slight benefit. Creosote in minim doses was given four times a day along with the calomel. After a few days the rashes ceased to appear, and in ten days the headaches and flatulence were much less frequent. The calomel was stopped, but the creosote was administered for six weeks, with steady improvement and only one or two headaches. At the end of that time a gain of three pounds in weight was reported, with the child bright and active, and apparently free from headaches and fermentation.

These cases all serve to show that creosote has a very decided value in the treatment of fermentative intestinal disorders, both acute and chronic, and in children as well as adults. It has the advantage of being non-toxic in these small doses, while its ready anti-fermentative action, both before absorption and after elimination, if authorities are right, renders its effect a continuous one. Combined with a mild purgative, to empty the alimentary tract as completely as possible, it promptly serves to render that canal sufficiently antiseptic to overcome the trouble. The rapidity and completeness of this action vary in different cases, but in no instance were good results lacking.

The sixth case was a married woman of twenty-five years with four weeks' continuous nausea and vomiting. For the last

two weeks she could retain nothing on her stomach. After trying other remedies unavailingly, relief came with the use of creosote in two-minim doses.

The seventh case was one of whooping cough in a boy of three years. Creosote in minim doses every two hours was administered and at the end of a week the paroxysms had decreased one-half in number and were of much shorter duration with looser expectoration. The creosote was ordered continued, but the case disappeared from observation.

The eighth case was a girl of four years with whooping-cough of two weeks' duration. Creosote lessened the number of paroxysms and decreased their violence. On neglecting the use of the creosote there was a relapse, with improvement on its resumption again. The case was lost from observation while doing well.

The rest of the cases described were one of bronchitis and one of tuberculosis with pulmonary hemorrhages, both of which did well on the creosote treatment. In summing up his results the author says:

"These few cases are cited as showing conditions in which creosote is not ordinarily employed by most practitioners, and yet where it has proved of value. The germicidal properties of creosote, and its action on mucous membranes by stimulating the glands and exercising a sedative effect on the nerve endings, both before absorption and on elimination, certainly afford it a wide field of usefulness, which does not seem to be generally acknowledged in its entirety. A frequently quoted objection to the use of creosote is the irritation sometimes produced in the gastro-intestinal tract. This is often due to the size of the dose ingested, for in amounts of several minims it certainly is apt to produce a local caustic action on the average stomach. This can not be thoroughly obviated by administering it in capsules, milk, or other media, if the dose remains large. The safer plan is to give it in smaller doses, frequently repeated, and so thoroughly mixed with some vehicle as to prevent any great amount of the creosote from coming in contact with the mucosa at one spot."

# PROGRESS IN MATERIA MEDICA

**Ichthyol** has been used in *gynecology* by Dr. Gustav Woyer,<sup>1</sup> of Vienna, who reports as follows: In two cases of puerperal parametritis, the clinical histories of which are given in detail, the vaginal introduction of ichthyol-glycerin tampons produced complete relief from pain and in a comparatively short time effected cures. In fifteen cases of chronic inflammatory diseases of the adnexa the analgesic action of 10-per-cent. ichthyol-glycerin tampons was promptly manifested. In two cases in which the ichthyol was replaced by another remedy without the patients' knowledge, the latter were astonished at not being relieved as they previously had been; on again employing ichthyol, relief was promptly obtained. In four cases of erosion of the portio vaginalis, the application of ichthyol for two weeks effected the formation of a new dermis and mucous membrane. Immediately after the application of the remedy the eroded parts became pallid and corrugated.

In nine cases of inoperable uterine carcinoma undiluted ichthyol was used for cleansing the surface after the removal of the friable masses, and then a tampon impregnated with undiluted ichthyol applied. The ichthyol was never observed to have any corrosive action. The seat of the carcinoma, on the contrary, exhibited in a short time an excellent appearance; and where excessive secretion existed the remedy exerted a very energetic deodorant action, and checked the secretion very materially. The treatment, which must, of course, be carried out with the greatest care, gives excellent results, as it removes the fetor perfectly in from two to three days. The author, therefore, considers the palliative treatment of carcinoma to have been greatly enhanced by the ichthyol medication, apart from the secretion-checking and disinfectant action of the ichthyol, and the rendering the use of morphine unnecessary, because of the analgesic effect obtained by the ichthyol applications. This effect is the more valuable as it enables the strength of the patient to be preserved to a far more satisfactory extent than when large doses of a narcotic are given during painful seizures. The effect was astonishing in cases of carcinoma relapses; and this was also true in inflammatory diseases of the adnexa and peritoneum, in which as good results were obtained by the applica-

tion of ichthyol as by the administration of morphine for the relief of the pain.

The author is also wont to employ ichthyol in cases where severe pains occur after massage in fixed retrodeviations of the uterus of old perimetric processes. An ichthyol-glycerin tampon inserted after massage was found to be an excellent analgesic. This specific action of ichthyol also afforded good service in two cases of exudation from the stump following vaginal radical operation.

In a few of the cases the ichthyol was given in pills of 0.1 Gm. ( $1\frac{1}{2}$  grn.) each, from three to five being given daily.

**Sodium Cacodylate** has been employed in the treatment of *epithelioma* of the tongue by Renaut.<sup>1</sup> The case was diagnosed both clinically and microscopically as epithelioma some years ago. His condition greatly improved under the use of sodium cacodylate in the form of pills containing each  $\frac{3}{4}$  grn., one to five pills a day. For eighteen months the treatment was kept up at alternating intervals of a month. The local treatment with alkaline mouth-washes is not considered a factor in the good behavior of the case, which must therefore be due to the cacodylate.

**Corrosive Sublimate** baths have been used by Drs. H. A. Ingalls and R. L. Yeager,<sup>2</sup> of Cincinnati, Ohio, in 36 cases of *smallpox* without mortality. One was hemorrhagic and thirteen confluent. Dr. Ingalls says that pustulation and pitting were lessened, there was but little distortion of features, only the merest trace of the odor of the disease was observable, temperature returned to normal from the 8th to the 10th day in most cases, and the duration of the disease shortened.

That the baths were comforting is evidenced by the fact that the patient asked for them in case of delay. The method of giving the treatment was as follows: A six-foot bath-tub was placed beside the patient's cot and filled with a fairly warm— $103^{\circ}$ – $105^{\circ}$  F.—solution of bichloride, 1:10,000, and the patient placed therein, head and shoulders above the solution; the nurse then went over the entire body, using a soft cloth, being careful of force applied, so as not to cause much pain. After remaining

<sup>1</sup>*Rév. de Thérap.*, 1900, No. 7.

<sup>2</sup>*Jour. Amer. Med. Assoc.*, XXXIV, p. 1044.

<sup>1</sup>*Wien. med. Presse*, 1899, No. 47.



in the bath about ten or twelve minutes, the patient was removed, thoroughly dried, dressed in freshly laundered clothing and placed in a clean bed.

These baths were given night and morning. After removal from the bath the patient felt much relief, but shortly after, owing to the drying effect, complained of a burning sensation "just beneath the skin." We found that all were likewise affected, so, to obviate this, we began a routine practice of anointing patients immediately after the bath with a mixture of carbolic acid, bismuth subnitrate, and olive-oil, with a very happy result.

The author concludes that, taking the above facts into consideration, the following deductions can be made in regard to this treatment: 1. There is practically no mortality. 2. The suppurative fever can be shortened four to six days if patient is treated from the onset. 3. A minimum of pitting is secured and an almost entire absence of the characteristic disagreeable odor. 4. The period of desquamation is materially lessened owing to the thinness of the scab formation. 5. Pain is much reduced, morphia being rarely indicated. 6. The great distortion of features which gives us such repulsive looking patients is eliminated to a great extent.

**Atropine Sulphate** as a means in the diagnosis of *eye strain* in *persistent headache* due to this cause is recommended by Dr. Otto Landman,<sup>1</sup> of Toledo, Ohio. The author says that the method under consideration will save time, is coupled with a great degree of accuracy, and requires no special knowledge of refraction and its correction by glasses. It will enable us to exclude other conditions as causes of certain persistent headaches, and consists simply in the use of a solution of atropine sulphate instilled into the eyes. The method should be employed to determine the cause of persistent headaches.

It is probable that the results obtained are due to the effect of the drug on the innervation of the ciliary muscle, for after the accommodative power returns the headaches often reappear.

After presenting a hypothesis as to how eye strain produces the various types of headaches, the author goes on to say that those which are most frequently produced by ocular defects are situated, as to their frequency, in the following regions: supraciliary, occipital, occipitofrontal, vertex, and temporal.

Dizziness, when caused by eye strain, will often be relieved by paralysis of the ciliary muscle with atrophine sulphate, and can be permanently abolished by glasses. The conclusion is that when a persistent headache, situated in any of these localities, disappears on atropine being used in the manner directed, the case is probably due to eye strain and can be remedied by properly adjusted glasses. To obtain the result, the atropine must be pushed to the complete suspension of accommodation. The directions for use are simple: A solution of  $\frac{1}{4}$  grn. of atropine sulphate to 2 dr. of water, with directions to drop 3 drops in each eye, three times a day, until ten instillations have been made. When on the return of the patient after the use of the atropine we find that the headaches have disappeared then a favorable prognosis for the dissipation of the headaches, through correcting lenses, can be given. There is one general caution to be observed, and that is the careful use of atropine in older persons. In increased ocular tension it should never be used.

**Validol** is lauded by Dr. J. Arnold Goldmann,<sup>1</sup> of Vienna, in the treatment of neuralgia, hysteria, and neurasthenia, declaring it to be perhaps the most valuable among the remedies recently introduced for the treatment of migraine and nervous headache, and as a sedative analgesic and stomachic, while its anti-fermentative power constitutes a valuable property in that it prevents the formation of pernicious gases in the stomach and intestines. The author has used it in a series of nervous disorders both of gastric origin and those due to disturbances of the central nervous system, with excellent effect. It was found to be particularly effective in cases of nervous dyspepsia, nervous headache or cephalalgia, and migraine, as it nearly always afforded a rapid and long-continued improvement. Equally satisfactory results were noted also in neurasthenic conditions, as the patients felt much fresher, more active, and stronger under the validol treatment; while the depression and irritation exhibited by the hysterical as well as the neurasthenic were wonderfully relieved. The author gave the validol three to four times daily, according to the severity of the case, age, constitution, etc., in doses of 5 to 15 drops in mixture with some corrigent syrup, or in gelatin capsules, or dropped on sugar, or even in some sweet wine. In most cases these doses sufficed, the remedy being well borne, and seldom causing eructations. and then only

<sup>1</sup> Jour. Amer. Med. Assoc., XXXIV, p. 914.

<sup>1</sup> Klin.-therap. Woch., 1899, N. 4.



in the case of particularly sensitive subjects. No unfavorable by-effects were noted, even after continued use for a long time. The validol repeatedly employed externally and with very favorable results. In various neuralgic affections, as hemicrania, cardialgia, etc., it rapidly exerted a sedative and analgesic action when rubbed in; and applications over the cardiac region in angina pectoris, as well as applications to the temples, invigorated and refreshed the patients. In hysterical spasms and cardiac weakness its analeptic action was repeatedly observed, as well as its power to check vomiting. The author reports having observed its remarkably good action in a case of acute alcoholic intoxication, in which the severe and turbulent symptoms were rapidly controlled by it. The cases in which validol had been tested numbered 65, and comprised 23 of migraine, cephalalgia and other neuralgic affections; 15 of neurasthenia, 8 of typical hysteria: 18 of nervous dyspepsia and cardialgia, and 1 of acute alcoholic intoxication. In all of these cases the validol was found to constitute a good, serviceable, perfectly harmless remedy, eligible for use for long periods, and to exert an excellent energetic yet non-irritating influence as an analeptic, stomachic, carminative, and analgesic.

**Gelsemium** is commended by Dr. E. C. Rothrock,<sup>1</sup> of Tennessee Colony, Texas, as an excellent antiperiodic, unrivaled febrifuge, an antispasmodic, a diaphoretic, and an anaphrodisiac. He says that 10 drops of the fluid extract every three hours will promptly reduce temperature, pain, and nervousness in remittent and intermittent fever. It should never be used in weak heart or congestion. In cerebro-spinal meningitis it acts well when administered in 10 drop doses every three hours. The author advises the giving of two drops of fluid extract of aconite with the gelsemium in such cases to control the fever and steady the circulation. When this is accomplished the dose of the aconite should be reduced one-half. To relieve the headache and backache 5 drops of fluid extract of belladonna every four hours alternated with the gelsemium works well. Should pain return to the head, with vertigo, convulsions, paralysis, stupor, emprosthotonos, or feeble and irregular pulse, two or three drops of cannabis indica alternating with the gelsemium every 2 hours will bring relief. If mania, great motor excitement, and persistent insomnia occur, gelsemium, he says, alternated with 15 to 20 drop doses of fluid extract of hyoscyamus, acts promptly. The

author goes on to say that in acute and chronic puerperal mania hyoscyine  $\frac{1}{16}$  to  $\frac{1}{8}$  grm. hypodermatically, or fluid extract hyoscyamus 15 to 20 drops alternated with fluid extract gelsemium 10 drops every two or three hours, as indicated, is the best agent he ever used in such troubles. In delirium tremens and delirium of fevers it is a very satisfactory remedy. In neuralgia, gelsemium is of great benefit. In neuralgia of the fifth nerve it has a selective influence. In spasmodic cough gelsemium is very useful in small doses; it is of great benefit in whooping-cough, and in a dry, tickling cough at night; alternated with hyoscyamus, small doses, it is useful in allaying all troublesome coughing. In tetanus, gelsemium, and conium in proper doses, combined or alternated, act well. In epilepsy, hysteria, hysterio-epilepsy, gelsemium is of decided benefit, and alternated with hyoscyamus, conium, and belladonna, as indicated, will relieve most convulsive disorders. In nervous and bilious headaches, colds, pneumonia, ague cake, and malarial fevers, gelsemium is one of the best remedies we have for such troubles. Quinine, in malaria, renders the cure more prompt. Gelsemium obviates those unpleasant effects of the head often produced by quinine. In gout and rheumatism, gelsemium can be combined with colchicum, guaiacum, or any other remedy with advantage. Nephritic and cystic irritability have promptly yielded to its action. In labor, where there is rigidity of the os or perineum, fluid extract gelsemium, 5 drops every fifteen or twenty minutes, will relax the parts.

**Tropacocaine** has been used as a *local anesthetic* by Dr. Richard Block,<sup>1</sup> factory and district physician of Zborovitz (Mähren), since 1898. He has employed it exclusively by the Schleich infiltration method in his practice. The author used a solution containing 0.2 Gm. (3 grm.) each of tropacocaine hydrochlorate and sodium chloride in 100 Cc. (3 oz.) of distilled water; and after the exhibition of many liters of the solution subcutaneously, even to children, not the slightest sign of any intoxication was ever observed. This is ascribed to the fact that tropacocaine is but one-third as toxic as cocaine, while at the same time it is no-wise inferior to the latter in local anesthetic power. The great advantages possessed by the solution are, that it may be injected without fear of any untoward results, and that when properly made the bloodless, harmless process fully convinces the patient of its safety, and even leads him to frequent

<sup>1</sup>Wisconsin Med. Rec., 111, p. 67.

<sup>1</sup>Centralbl. f. d. ges. Therap., 1900, No. 1.

ly desire injections to be made. Another important advantage is that the tropacocaine solutions remain clear and serviceable for a week without any special precautions—due to the inherent antiseptic power of the tropacocaine itself. The author has also employed dionin in place of the morphine in the Schleich's solutions in particularly painful cases, and with the most excellent results (0.05 Gm. of dionin were used in 100 Cc. of solution No. II). But, as a solution so made did not keep so well, and after-pains were not observed even when no dionin had been present, the author reverted to the plain tropacocaine and sodium-chloride solution; but before injecting this, making an injection of a 2½-per-cent. dionin solution.

In conclusion, the author states that the application of the tropacocaine solution in the infiltration method of producing local anesthesia in not purely surgical operations, is of value in the following cases:

1.—As a means of carrying out painless cauterization.

2.—As an antineuralgic in the treatment of peripheral neuralgias (idiopathic), in other various painful peripheral affections such as contusions, distortions, sprains, suppuration, etc., and also in the most varied arthritic processes.

3.—As a means of differential diagnosis in differentiating between peripheral, central, or reflex neuralgic processes, and between simulated and actual pain.

**Salol** in *smallpox* was the title of a paper read by Dr. Charles Begg<sup>1</sup> at a recent meeting of the Edinburgh Med.-Chirurg. Soc. Dr. Begg stated that he had been led to use salol in smallpox because of observations made in a case of cystitis in which the patient, who had suffered intensely from mosquito bites before, did not in the least notice the insects while taking salol in doses of one dram daily. He had numerous bites, yet none showed the least appearance of swelling, redness, or irritation, and this led to the idea that the salol might be useful in other irritating skin affections, and on trial the anesthetic action was confirmed. The remedy was hence tried in smallpox, and was found to keep the patient free from all irritation. There was no desire to scratch the skin, and so the danger to the eyes was greatly decreased. This freedom from cutaneous irritation allowed of sleep, and consequently exhaustion was prevented. Salol also was found to almost always prevent the vesicles from maturing into pus-

tules. In one case, in which the patient had been only once vaccinated, and that during infancy, confluent smallpox occurred, and only two groups of vesicles ended as pustules. In almost every case the lymph dried up, and the eruption so ended. There were no dangerous effects from the use of the salol in quantities of one dram daily, continued for a long period. The patients, when brought at an early period fully under the action of the remedy, suffered but little scarring. The fetid odor exhibited by smallpox patients was entirely masked by the "fruity" odor which the salol manifested during its elimination by the skin.

**Dionin** has been employed in 200 cases of *eye diseases* by Dr. A. Graefe, of Berlin. The author employed it in 10- and 20-per-cent. solutions, and also even stronger solutions as well as in powder form. So applied to the eye, both the ocular and palpebral conjunctiva were more or less reddened and swelled up, the swelling frequently involving also the cheeks and nasal mucosa. The ocular conjunctiva also often enveloped the cornea, while anesthesia of the conjunctiva and cornea supervened in about three minutes, the cornea exhibiting great brilliancy. No changes in pupillary size were noted. The lymphatic congestion, frequently very painful, is only felt as a sense of pressure on the eyeball after about a minute and a half; in many cases, however, it is so pronounced as to prevent closure of the lids. The period during which this chemosis lasts varies greatly—from one-half to twenty-four hours—and a tolerance towards the remedy is rapidly established. In order to produce a similar result a second time a more concentrated solution is necessary. Phlyctenular keratitis, pannus, infiltrated lids of scrofulous or other character, and corneal opacities were also treated, and were found to be favorably influenced only when they were of long standing, as recent cases responded better to the older therapy. Cures were effected in cases of epithelial defects, which so frequently are apparently healed, only break out again and result in opacities. Recent traumatic epithelial defects are not influenced by dionin, however. The remedy is not eligible for use as an anesthetic for removing foreign bodies from the eye, because of the swelling to which it gives rise. In *ulcus serpens* it gave no results whatever, nor were any benefits obtained by its use in three cases of corneal perforation. In a case of perforating corneoscleral wound the remedy

<sup>1</sup> *Med. Rev.*, III, p. 94.

*Therap. Beil. d. Deutsch. med. Wochenschr.*, XXVI, p. 9.



caused a hemorrhage from the iris which made it necessary to suspend it. In a case of myopia, and in four of discission of secondary cataracts, results were negative. In four cases of very painful inoperable chronic glaucoma a combination containing 20 per cent. of dionin and 1 per cent. of pilocarpin gave very good results during the first two weeks; after that, no more.

The remedy should not be used in cases where bulbar incisions are to be made, because of the great danger due to frequent and severe fits of sneezing, at times following the instillation of dionin. Very satisfactory results were obtained with dionin in old dry catarrhs and chronically inflamed lids. In iritis the remedy is indicated as being very serviceable. Two cases of chorioretinitis that had resisted all other medication yielded to the instillation of a 10-per cent. dionin solution thrice daily, both cases being greatly improved within three days, and the patients enabled to dispense with protective glasses after three weeks. Fifteen cases of vitreous opacity in severe myopia were greatly benefited by 10-per cent. dionin solutions used twice or thrice daily, the number of spots being reduced and the normal eye tension restored. Instillations in two cases of *amotio retina* also effected a restoration of almost normal tension.

He sums up his conclusions in the following résumé: Dionin is a very satisfactory remedy in old corneal diseases of every kind, excepting trachomatous ones; in dry and catarrhal conjunctival affections; in iritis and iridocyclitis (in combination with atropine); in opacities of the vitreous substance; and apparently also in chorioretinitis. On the other hand, it is ineligible for use as an anesthetic, and in operations requiring an incision into the eyeball (because of the sneezing which may follow the instillation).

**Ichthyol** in *scarlet fever* is the subject of a report by Dr. A. Seibert,<sup>1</sup> professor of pediatrics at the New York Polyclinic, who since 1894 has treated fifty-six cases of scarlet fever with inunctions of ichthyol. The inunctions were made with 5 to 10 per cent. ichthyol-lanolin ointments every 6 to 12 hours, according to the intensity of the cutaneous inflammation, and in such a manner that the entire surface of the body, from the toes to the head, was so impregnated as to show almost no sign of the ointment. According to the patient's size, 30 to 90 Gm. (1 to 3 oz.) of ointment are required for each inunction, which must

be so performed that no red patches should be visible on the skin, but that the entire body should present a light-brown color. Every inunction requires at least half an hour, and its purpose is not to cover the body with ointment, but to press the ichthyol into the skin and so cause it to come into direct contact with the bacteria in the capillary blood vessels, there to exert its bactericidal power. That this object is attained is shown by the following results: 1. The cutaneous swelling subsides already after the first thorough inunction. 2. The itching is immediately relieved, and disappears after several applications. 3. Rhagades and secondary phlegmonous and erysipelatous cutaneous infiltrations are by this means entirely prevented. 4. The body temperature falls in all cases where no complications exist from one to three degrees F. in a few hours. 5. Restlessness and insomnia are relieved in cases as so frequently happens, where these are caused by the cutaneous inflammation. No malignant cases, terminating fatally in a few hours, or very mild cases, in which the exanthema was only just visible, or those seen in consultation, are included in the fifty-six cases mentioned, but in all of these the beneficial results above noted were observed. In six cases there were found traces of albumin in the urine during the first few days, at times with epithelia and some casts, but these soon disappeared. Post-scarlatinous nephritis, and inflammation of the joints or ears were never observed. Besides the external application of ichthyol, teaspoonful doses hourly of a mixture of tincture iodine 2 Gm. (32 grn.), potassium iodide 1 Gm. (16 grn.), water 120 Gm. (4 fl. oz.), and carbolic acid 10 to 40 drops, were given.

The intensity and period of exfoliation are greatly lessened and reduced by the employment of ichthyol ointment, which, during this period, must be applied once daily. No toxic phenomena were ever observed. The pharyngeal complications from which, ordinarily, patients run great risk, were avoided by the author by enforced prophylactic irrigation of the pharynx and its environment with 5-per cent. ichthyol solutions, because ichthyol has been shown to be non-toxic even in large doses, and because of its strong bactericidal power, even in weak solutions, on pyogenic and erysipelatous streptococci. The irrigations were made by allowing the solution, slightly warmed, to flow through the nostrils and issue from the mouth, and were made every six hours, day and night—thus avoiding all possible infection of the pharynx and consequent pharyngeal complications. The

<sup>1</sup> *Jahrb. f. Kinderheilk. u. Phys. Erzieh.*, LI, p. 300.



period of the disease was much lessened, being decidedly shorter than in the cases treated otherwise during the previous 18 years. Nephritis was observed in five cases, but in only one case did it last as long as two weeks. In no instance was edema noted. Otitis media was encountered but once, and that only on one side—and similarly with enlargement of the lymphatic glands. The so-called scarlet-fever rheumatism was observed twice, but was relieved in a few days by the rectal exhibition of sodium salicylate. In all the cases the children vigorously opposed the nasal irrigations. These were made compulsorily, however, and strict injunctions laid on the attending nurse to faithfully carry them out. This was usually done, even by parents themselves, and the more so when the beneficial results, evidenced by a fall in temperature, etc., were clearly made manifest. In conclusion the author states that Drs. J. J. Kelly and Adolph Baron have together treated 46 cases of scarlet-fever during the last two years according to the above plan, and each has recorded but one loss—one due to sepsis, and one from cerebral abscess. In both of these cases injunctions alone, without irrigations, were practiced. All cases of scarlet-fever diphtheria which were treated with ichthyol irrigations were cured within a few days.

**Pyoktanin** has been used for some years by Dr. M. F. Coomes,<sup>1</sup> of Louisville, Ky., in *purulent ophthalmia, gonorrhea* and *follicular tonsillitis*. He says he has found it reliable in the treatment of purulent ophthalmia in all forms, whether gonorrheal in origin, or due to other causes. The remedy checks the discharge promptly, and since using it, the author has had but one case of corneal ulceration, and that one had been under another practitioner's care for some days, and the cornea was already hazy when the pyoktanin was applied. A solution of 3 grn. to the fluid ounce is quite strong enough, and it should be applied to the eyes every six hours in bad cases, after the conjunctival surface has been thoroughly cleansed. The usual precautions of cleansing every thirty or forty minutes in severe cases must not be lost sight of. The pyoktanin is equally effective in checking the gonorrheal discharge. A solution of the above named strength is sufficiently strong for any injection or local application. In gonorrhea it is beneficial when administered internally as well in doses of 2 or 3 grn. thrice daily. It colors the urine blue, and

certainly has a very decided psychical effect on the patient. The blue urine makes him believe that the right place has been reached, and doubtless frequently causes him to persist in the use of the remedy when otherwise he would fail to do so.

The author uses pyoktanin exclusively in the treatment of follicular tonsillitis as an application, and its action is said to have always been prompt and uniform in hundreds of cases. The whole tonsillar surface and adjacent tissues should be mopped with a solution (3 grn. to the fluid ounce) two or three times in twenty-four hours, followed by a gargle of potassium bromide 4 dr., glycerin 2 fluid ounces and water 1 pint. This should be used every hour, and is better if used very hot.

**Orexine Tannate** has been given by Dr. B. Laquer,<sup>1</sup> of Wiesbaden, in 16 cases, comprising anemia, nervous and atonic gastric affections, and digestive disturbances among phthisical subjects. Care was exercised in eliminating any possibility of suggestion, in order to thoroughly test the value of the remedy, which was given in periods varying in duration from two days to two weeks. The results obtained were uniformly good, and were particularly so in a case of nervous cardialgia with subacidity and reduced motility, in which the orexine tannate promptly cut short the pain of the slightest manifestation of an attack, although the remedy had been given for weeks. The orexine tannate was given in doses of from 0.5 to 1 Gm. (8 to 16 grn.), care being exercised that no food was taken between the dose and the meal-time. A constipating action due to the tannin was never observed. In anatomical gastric disorders, such as ulcer, febrile gastritis in children, etc., the orexine tannate is contraindicated.

**Arsenic** as a cause of neuritis, when given for a long time in large doses, was commented upon some time ago by a writer in the *Medical Chronicle*. He had three very severe cases of this kind among patients that were under treatment for chorea, and with whom he had reached a point where they were consuming less than the maximum amount given by many able English physicians of 6 grn. of arsenous acid per day. Commenting on these cases the editor of the *Therapeutic Gazette*<sup>2</sup> says that of course these doses are exceedingly large as compared with those that are commonly given in America, but as Dr. Rail-

<sup>1</sup>*Mediz. Neuigkeit.*, I., No. 1.

<sup>2</sup>*Therap. Gaz.*, XXIV, p. 238.

ton points out, some English physicians have at times given doses equivalent to this with very extraordinary success in the treatment of obstinate cases of chorea.

The editor points out the fact that for many years it has been a well known fact among medical men that artisans or other persons exposed to the fumes of arsenic may suffer from chronic arsenical poisoning, and that the chief manifestations in this condition may be due to a peripheral multiple neuritis caused by the selective affinity of the arsenic for the nerve trunks.

It is also a well known fact in the profession that the nearest approach that we have to a specific for the treatment of chorea and St. Vitus's dance is arsenic in one of its forms, and skilful physicians have also known that chorea can be treated with arsenic successfully only when this drug is given in full and ascending doses.

Because of the fact that persons rapidly develop a tolerance of arsenic it is often possible to give very large doses without developing disagreeable symptoms, but within the last few years numerous instances have been recorded in which gastro-intestinal tolerance of the drug was apparently developed until massive doses could be given, which doses, being absorbed, benefited the chorea, but also produced neuritis.

**Dormiol** is reported by Dr. Ernst Schultze,<sup>1</sup> as having been administered by him in the County Sanatorium of Andernach, and, from the experience gained in giving over 1000 doses, he recommends the remedy as a serviceable and certain hypnotic for those mentally affected. It was given in doses of from 0.75 to 1 Gm. (9 to 12 min.) but usually in doses of 1.5 Gm. (18 min.) and at times even 3 Gm. (36 min.) were found to be necessary. It appears that when this last dose is ineffective, the dormiol should be altogether suspended. The remedy was administered in water without any corrigent.

**Ibit** is the name given to bismuth oxyiodotannate. This preparation is described by C. Brunner and C. Meyer<sup>2</sup> as a greenish gray, odorless, tasteless, fine powder, well adapted for *dusting on wounds*. It is quite permanent in the light, but in direct sunlight it gradually acquires a brownish color. In contact with water or animal fluids, or in moist air, ibit gradually decomposes, with the production of a reddish compound containing less iodine. With warm water, this

decomposition proceeds much more rapidly. Ibit is insoluble in the ordinary solvents; it yields good ointments with lard or petrolatum, and an emulsion with glycerin and water which remains good for some time. With oxidizers and concentrated acids iodine is liberated; it has a faintly acid reaction towards moistened litmus paper. Diluted acids and caustic soda solution dissolve it. The preparation is said to possess bactericidal properties, and to be applicable as a disinfectant vulnerary.

**Castor Oil** in the treatment of *neuralgia* was the subject of a paper read by Dr. Harold N. Moyer<sup>1</sup> at a recent meeting of the Chicago Academy of Medicine. He referred to the results of Dr. A. J. Ochsner, of Rush Medical College, with thirteen consecutive cases treated with this remedy, all of them being relieved or greatly improved. The author had treated fifteen cases by this method in two years, and asserts that it has given him better results than any other he had ever tried. Only seven of his cases, however, were under observation long enough to enable him to speak definitely of the results. Five of these were neuralgias of the facial nerves, and two were typical cases of brachial neuralgia. Both the latter were comparatively recent in development when treatment was begun, and one of the cases of facial neuralgia had begun but two weeks before. Of the cases of brachial neuralgia, one had lasted one and the other two weeks. The one of the shorter duration was exceedingly severe and had been under the care of a competent neurologist for more than a week. Electricity and other remedies had been employed, but without giving the slightest relief. This patient was given a large dose of castor oil at one o'clock, and by four the pain in the arm had largely decreased; the following night he rested well and the next morning the pain had practically ceased. He took three or four doses of the oil afterward; there was no return of the pain. The results in acute cases have been better than in chronic ones, but even in the latter only one failure can be charged to the method. Another case was that of a man aged thirty-four, who had typical tic douloureux which began in the left supraorbital branch at seventeen years of age. The duration therefore was seventeen years. The pains were distinctly paroxysmal, coming on at periods of from about 5 minutes to an hour. He came asking for an operation, as the pain had been so severe that it affected his health. The administration of the oil was followed by a

<sup>1</sup>Apoth. Ztg., XV, p. 234.

<sup>2</sup>Pharm. Ztg., XLV, p. 116.

<sup>1</sup>Jour. Amer. Med. Assoc., XXXIV, p. 981.



prompt improvement of the pain, and while the patient cannot be said to have been cured, as the spasm remains and there are occasional twinges of pain, yet he says he is much more comfortable than he has been in years, and if the pain is not much more severe than it has been during the past winter he will consider himself quite well.

Another case was that of a man thirty-seven years of age, who had neuralgia which began on the right side of the face and had lasted for five or six years. Three years ago the infraorbital nerve was divulsed. Six months before coming under observation, the disease appeared on the left side of the face, and he came asking for surgical relief. Treatment was begun, and at the end of a week the pain had entirely disappeared, and there has been no return up to the present time. This case was one of the most brilliant in its results, although it was nearly duplicated by a case of supra-orbital neuralgia of fifteen years' duration, which was cured by the administration of the first half dozen doses of the oil.

The case in which there was no improvement showed on examination of the eye mixed astigmatism and a well-marked eye strain. In closing his paper the author said that an interesting speculation might be entered on as to how castor oil acts in relieving neuralgia. That it is not due to the cathartic action of the drug is clearly shown by the fact that other cathartics and laxatives are of no value in relieving this condition. The physiologic action of castor oil has not been definitely determined.

Concerning the method of administration he says that he gives it before breakfast, the dose being one to two ounces. As a rule patients have little difficulty in taking the larger amount, though in some cases it was difficult to keep this amount on the stomach. At first patients were left largely to their own devices as to the methods of taking the oil, but later care was taken in directing the preparation, with a corresponding improvement with the case with which it was taken and with the persistence with which they held to the treatment. Castor oil, if kept for some time, and as it is ordinarily found, is quite offensive to people, but it is very much improved by a thorough washing and the addition of a few drops of the essence of anise to each pint of oil. The most efficient means of administration is in ale—preferably dogshead, or Bass's ale, which contains a large quantity of gas, and which should be poured from the bottle in such a way that the glass contains a large quantity of foam. The oil is poured into the ale, stirred a few times with a spoon, and

then may be drunk without tasting the oil. The mixture with the ale forms an emulsion, and there is much less liability of the oil disturbing the stomach. When first administered, the oil acts freely on the bowels, but if it is continued daily, its cathartic effect rapidly diminishes, and it is not infrequent for patients to state that they have but a single movement of the bowels after the third or fourth dose.

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**Thiocol** as a remedy in *phthisis* is spoken of very highly by Dr. J. W. P. Smithwick.<sup>1</sup> He says that he has used thiocol in four cases of pulmonary tuberculosis—two incipient and two well advanced, and that under the use of the remedy all the patients did well. The thiocol was administered in doses of 10 grn. one hour after meals, in the incipient cases about six weeks each, during which time all the bad symptoms completely disappeared, and the patients, so far as could be determined, regained their normal health. In one of the more advanced cases, the thiocol was given in doses of 5 grn. after meals, each dose being increased by 5 grn. every third day. The general improvement was astonishing, and the patient gained nine pounds in weight. The appetite being good, digestion much improved, cough but little troublesome, while the night sweats occasioned almost no trouble. The sputum improved greatly in appearance also. Three 5-grn. tablets of thiocol thrice daily for two months longer effected a cure to all appearances, as at the end of that time physical signs had disappeared, the patient had gained twenty pounds in weight and repeated examinations since have shown the patient to be perfectly sound.

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**Bilberries** have been recommended in diarrheal conditions since the time of Hippocrates, who himself mentions them and praises their action. In later days Boas has reported on their use, and Strauss<sup>2</sup> gives the results of his experience with enemata and suppositories made from the extract. The older method was to employ simply infusions prepared extemporaneously, but the difficulty in procuring fresh fruit and the annoyance attendant on the process of decoction, led the author to substitute the concentrated extract, and with satisfactory results. Enemata of the following composition were administered twice daily: A tablespoonful of the extract is dissolved in a half-pint of warm water and a small quantity of soda added to neutralize the acid.

<sup>1</sup>*Southern Med. Jour.*, III, p. 55.

<sup>2</sup>*Therap. Monatsh.*, XIV, No. 3, p. 134.



The class of cases adapted to this medication embraces proctitis, sigmoiditis, and colitis, acute and chronic. Forms of intestinal inflammation in which the lesion is higher up and partially or entirely in the small intestine require internal medication as well. The beneficial results of this treatment, which are fully equal to those of bismuth, aluminium acetate, and silver nitrate injections are due not alone to the tannin present, since in these cases as well as in cases of glossitis the bilberry applications were effectual after tannin solutions had been used in vain.

Suppositories, each containing 15 grm. of the extract, were also found of value, though in most instances, on account of their greater diffusibility, the enemata are to be preferred.

**Stypticin** is said by Dr. Richard Bloch,<sup>1</sup> of Zborovitz, to have been used by him as a *hemostatic* in his dental practice during the past two years, and with always prompt and satisfactory results. The author has found the remedy to be particularly useful in cases where excessive hemorrhage occurred during the attempt to extract broken-off roots which were deeply imbedded in the tissues, and the location and contour of which could not be determined because of the bleeding. It was found best in practice not to employ the remedy in solution, because of its too bitter taste, but to apply the powder itself directly on a small dampened cotton tampon. So used the stypticin immediately checks the hemorrhage, and enables operations to be performed at once. It is suggested that a suitable means of application would be a stypticin gauze made from a 50-per cent., or even a more highly concentrated, solution of stypticin.

**Ethyl Bromide**, according to Dr. Geo. R. Fowler,<sup>2</sup> of Brooklyn, has proven in his hands an excellent article for use preliminary to sulphuric ether in the production of *anesthesia*. As early as 1876 he tried it for the complete etherization of a patient, but being alarmed by what he thought to be epileptiform convulsions he abandoned it and proceeded with his operation after etherizing his patient. A few weeks ago while watching the behavior of a patient undergoing temporary anesthetization by means of nitrous oxide preliminary to surgical anesthesia under ether, he was reminded of his early experience with ethyl bromide. Struck by the resemblance of the picture before him to what he had before

considered epileptiform convulsions he determined as soon as an opportunity presented itself to see if his fear had not been unfounded, and to reinvestigate the ethyl bromide with a view of utilizing it to overcome the struggling and other unpleasant symptoms of the first applications of ordinary ether. Providing himself with a Merck sealed uranium glass tube of ethyl bromide he waited an opportunity to try it in this connection.

This came in the shape of a vigorous Italian, with a large lymphoma of the neck, who gave an alcoholic history, and who, from all appearances, was the sort of subject likely to give employment to three or four orderlies during the first few minutes of the administration of ordinary anesthetic ether. He was admitted to the Methodist Episcopal Hospital in Brooklyn on February 16, 1900. The patient was very violent just as the anesthetic was to be administered. He sat upright on the wheel stretcher, and it took four men to hold him and prevent him from springing from the stretcher. About 6 dr. of ethyl bromide were poured into Fowler's partially closed cone, and the latter was placed over the nose and mouth with the patient still sitting upright. His struggles ceased after the first breath of inhalation, he was gently lowered to the horizontal position, and in twenty seconds from the application of the cone he was completely anesthetized, with stertorous breathing, cyanotic surface, dilated pupils, complete relaxation, and all reflexes abolished with the exception of pupillary reflex to light. The pulse was not appreciably affected, with the exception of a slightly increased tension. A similar cone was then quickly applied containing about 2 dr. of ordinary anesthetic ether. The patient was not affected by the change and was removed at once to the operating room and reported ready for operation in less than three minutes after the first anesthetic was commenced.

During the first few minutes the blood was dark and clotted easily; pulse good, and face slightly cyanotic. After fifteen minutes the respirations became superficial, the pupil erratic, but the pulse, except for increased tension, remained practically normal. Ether was withheld for seventeen minutes, when the cyanosis disappeared, the breathing became deep and regular and the blood regained its proper color. On reapplying the cone surgical anesthesia was re-established and the operation was concluded in forty-five minutes.

After the operation the recovery of con-

<sup>1</sup>Wien. zahnärztl. Monatschr., I, No. 12.

<sup>2</sup>N. Y. Med Jour., LXXI, p. 640.

sciousness was more rapid than usual, and no vomiting occurred. The patient did not even complain of nausea, and was not restless. The conjunctivæ of both eyes were slightly reddened, and the next day increased lacrymation was present. No other unpleasant sequelæ were observed. The conjunctival irritation subsided without treatment, the patient's wound healed uninterruptedly and promptly, and he left the hospital in a week.

Anesthetic agents employed: Ethylic bromide, 6 dr.; sulphuric ether, 9 oz.

No stimulation during anesthesia.

Urine before anesthesia: Specific gravity, 1.032; acid; normal constituents.

Urine after operation: Specific gravity, 1.032; acid; amorphous urates.

Later experience with ethyl bromide showed the doctor that he had used an unusually large amount in this case. His present plan, based upon an exceedingly favorable experience in upward of one hundred cases, this including, with but three exceptions, all the cases since operated upon in his hospital services, is to pour but 1 or 2 dr. upon the distributor (a cushion of upholsterer's curled hair) of a partially closed inhaler, and with the supervention of a sufficient anesthesia from the ethyl bromide, another dram or two being supplied as a second dose, if necessary (a rare contingency), ether is given slowly by the drop method through the slit in the cone. He has no doubt that the ordinary towel and paper cone will answer every purpose, although it probably will not economize the anesthetic as the pattern above alluded to does.

The procedure is as follows: From 1 to 2 dr. of ethyl bromide are placed upon the inhaler, and, in from thirty to forty-five seconds, according to the freedom with which the patient breathes, the administration of the sulphuric ether is begun, without changing the inhaler, and proceeded with as in ordinary ether anesthetization.

**Thiocol** has been used by Dr. Fritz Oelberg,<sup>1</sup> municipal physician to Vienna, in *phthisis*, in the form of a 10-per cent. orange-syrup solution. Twenty-eight cases of tuberculosis in children and adults were treated, and as the clinical history of the cases show, with such very satisfactory results as to lead to the conclusion that thiocol is the best remedy so far introduced for the treatment of this affection. The author gave the syrupy solution in doses of from a tea to a table spoonful and even more, thrice daily;

and in this form the remedy is readily taken by all, and is well borne by even the youngest children. The author hence recommends the thiocol warmly to his colleagues.

**Ichthyol**, writes Dr. Michel Kamneff, city physician of Melenki, Russia, has been and is now being used largely in Russia in the treatment of *smallpox*. A 1:5-8 ointment prepared with petrolatum is applied over the whole surface of the patient, and the latter, from the first day begins to feel better; the temperature is lowered, the pustules begin to dry up, and the course of the malady is shortened. After the cure, no marks whatever remain on the face or other parts of the body.

**Suprarenal Extract** and its uses is the subject of a recent editorial in a contemporary,<sup>1</sup> in which it is said that two theories have been put forward as to the mode of action of the suprarenal gland. One of these is that the gland forms a substance having a useful function in the human body by applying a secretion which promotes the tonicity of the arteries and the muscular tissue all over the body; the other is that as the effects of the removal of the gland are those of auto-intoxication, the suprarenal gland must normally act as an antidote or preventive of this toxicity.

The writer says that the active principle is said to be a substance resembling pyridine, that it is not poisonous nor cumulative in its action, and has no direct effect on the nervous system. Its uses have all been based on its physiological effects.

Nearly all inflamed tissues are said to be benefited by the application of this extract. It has been employed in the ear, throat, larynx, eye, urethra, and in fact upon every mucous membrane. It is not an objectionable hemostatic, like iron. Secondary hemorrhage follows it but rarely, and though its effects are somewhat transitory they have the benefit of being exceedingly certain.

Attention is called to the claim that the aqueous extract of suprarenal gland, when used locally, is the most powerful astringent and hemostatic known; that congestion of every organ to which it can be applied is relieved by the external use of the extract; that it benefits all forms of inflammation in all parts of the body; that it is the strongest known stimulant of the heart.

The editor then goes on to say that a great deal of interest attaches to the wide uses of this remedy. Its success in the

<sup>1</sup>Wien med. Presse, No. 9, 1900.

<sup>1</sup>Med. Age, XVIII, p. 253.

treatment of asthma has recently been much exploited. In the treatment of hay-fever it has been, and doubtless will be, regarded as a promising remedy. In the treatment of diseases of the urethra a wide field is offered for its use. The blanching of the tissues which follows its application will aid in the dilatation of strictures. In fact, in any case in which local hyperemia is a prominent symptom, the gland extract can find a place.

The limits of its usefulness in internal medicine have not as yet been defined, but that it is likely to find a permanent place in our materia medica seems an inevitable outcome of its proved value.

**Largin** in the treatment of *gonorrhea* is advised by Prof. Ernest Finger,<sup>1</sup> of Vienna. He has found it advisable to begin with protargol, and after three or four days to continue with largin, as the latter possesses a far more powerful bactericidal action than protargol, and penetrates much more deeply into the tissues, in consequence of which it more energetically destroys the gonococci. The author uses the largin in solutions increasing in strength from 0.25 to 1 per cent., and effective results are very rapidly obtained, injections being given once daily with the 1-per cent. solution beginning with the second week of treatment. There are used, besides, astringent injections twice daily containing zinc sulphate, alum, and carbolic acid. Or, the author employs solutions morning and noon, and at night an antiseptic astringent such as silver nitrate. This treatment has the advantage, it is stated, that the gonococci are rapidly destroyed, the disinfection quickly advanced, and a further development and spread of the infection hindered, so that the danger of a urethritis posterior is very greatly minimized.

**Sodium Cacodylate** has been used with effect in *chorca of Sydenham* as reported in three cases of medium intensity in the service of Dr. Garand, of the hospitals of Saint Etienne and his interne, Dr. R. Belbèze.<sup>2</sup> The patients, aged eight, twelve, and fourteen years, received during two periods of fifteen days each rectal injections as follows: A daily rectal injection of 5 Cc. (1 dr.) of a solution of sodium cacodylate in water, 1:400, for the first five days; two injections the five following days; three injections the next five days. After five days' interval the same treatment was repeated

for fifteen days. Cure was evident and maintained. This medication had previously been employed in the treatment of tuberculosis, leukemia, and Basedow's disease. It was again tolerated perfectly by the digestive tube without mishap, as Prof. Frasset<sup>1</sup> recently pointed out it would be.

**Mercuric Iodide**, freshly produced from potassium iodide and mercuric chloride, when administered in conjunction with hypodermic injections of pilocarpine, is believed to be almost specific in its action on various chronic eye affections by Dr. G. H. Barnham,<sup>2</sup> professor of ophthalmology and otology, Toronto University. He recently described his results with these remedies in a paper read before the Canadian Medical Association. He gave the particulars of three cases then under treatment as illustrative of his previous good results—one of cyclo-iritis of both eyes, of long duration, with the other changes in the eyes usually associated with the long continuance of this disease; a second of iritis of both eyes, with typical diffuse scleroderma; and a third of complete paralysis of the left third nerve, from acquired specific disease.

In the first case nine months of treatment is having a most beneficial effect, and he expects in time to chronicle with it a decided success.

He says of it, Now, the iris tissue can, for the first time, be seen in some places. Where previously a uniform, grayish membrane only could be made out, now the tissue of the iris can be distinctly seen.

Of his second cases he says: At present the iritis is very much improved, and the vision decidedly better. As to the scleroderma, in that there has been a steady, uninterrupted change for the better, till now it has reached a stage of improvement which forms a most striking contrast to the pitiable and apparently hopeless condition he was in.

After giving his treatment to the third case for thirteen days there was an increase in the movement upward of the eyelid and a slight movement inward of the eyeball. One week later, the injections being now stopped, the eyelid could be raised a full two-thirds of the normal amount, and the eyeball could be brought to the median line and held there. Three weeks after the first, the second series of injections, seven in number, were given. Diplopia was at six feet. At any great distance the vision was single. Three weeks later there remained

<sup>1</sup>Wiener Klinik, 1900, No. 1.

<sup>2</sup>La Sém. méd., 1900, No. 11.

<sup>1</sup>La Sém. méd., 1900, No. 11, p. 70.

<sup>2</sup>Canadian Prac., xxv, p. 174.



only a very slight drooping of the eyelid, and the patient could walk comfortably with both eyes open, up to this time being unable to do so on account of the confusion of images. Two weeks later diplopia could no longer be made out till the object was at a distance of ten inches.

The author states that there is one peculiarity in this treatment—that is, that no relapses occur, even in cases in which under the forms of treatment previously used they have recurred frequently and severely. The nerve centers, especially what we term the absorptive system, are most profoundly and directly acted upon in this treatment. Especially marked is this stimulated condition of the nerve centers during the first few hours after the injection.

**Bromoform and Chloroform Mixture** is of interest since it is pointed out in the *Journal of Medicine* of Bordeaux<sup>1</sup> that some physicians abstain from prescribing bromoform because they cannot easily recall the complicated formula for using it given by pharmacists; so the simpler formula advanced by Dr. Gay is given:

Bromoform.....	18 grn.
Chloroform .....	8 min.
Rum .....	4 fl. oz.

The advantages of this simpler formula lie in the fact that whereas alcoholic solutions of bromoform precipitate in excess of water, this mixture with chloroform does not precipitate, no matter what are the proportions of water present.

**Sodium Cacodylate**, administered through the digestive tract, was the subject of a communication from Dr. J. Grasset,<sup>1</sup> professor in the faculty of medicine of Montpellier. Referring to meeting of March 2d of the Medical Society of the Paris hospitals, he said unanimous opposition to this mode of administration was shown. Prof. A. Gautier claimed that to give the cacodylate by mouth or rectum transformed and deformed the treatment, rendered the substance either inactive or harmful. Inoffensive when used externally or hypodermically, nothing was more unstable or more easily converted into an extremely poisonous substance, absorbed from the gastrointestinal tract, capable of causing gastrointestinal troubles, pain, general fatigue, diarrhea, loss of weight, albuminuria (Teissier), etc. Heirtz and Rendu also ob-

jected to it on account of the bad-smelling alliaceous odor and intolerance of the medicine. Dalché had not noted intolerance.

Grasset did not give his consent to these objections, counting them as premature. He also had employed the medication by mouth and rectum. Intolerance was the exception. In most cases when given by mouth it had been well borne, and had produced good results therapeutically.

Following is a résumé of his last 13 cases: Not one had presented the alliaceous odor. In no case were there phenomena of gastro-intestinal intolerance. In none was it necessary to discontinue the medicine on this account. Several of these patients had increased in weight, notably a case of chorea and one of exophthalmic goiter. Four cases of tuberculosis had increased in weight. In all cases with increase of weight there was at first increase of appetite.

The writer adopted the method of employing his treatment interruptedly every alternate period of ten days. Besides, he employed only small daily doses ( $\frac{1}{3}$  to  $\frac{2}{3}$  grn.). But his colleague, Brousse, was at the same time employing 4 to 5 grn. a day in his dermatological service and observed no phenomena of intolerance. One of his patients had even taken by mistake 8 grn. a day for three days without bad results. Even if the hypodermic use was the method of choice there was nothing to prevent commencing the treatment by mouth or rectum. In many cases there would be tolerance and good therapeutic results. If intolerance or unexpected effects came on, the method could be changed to the hypodermic.

**Euophen** has been used by Saalfeld<sup>2</sup> for seven and one-half years in the treatment of ulcerations of the genitals. After repeated experiment with the various newer local antiseptics he has always returned to the older preparation as being just as efficient and entirely free from the objections that frequently attend the use of airol, orthoform, and numbers of other substitution products which are only too often irritating or toxic. He publishes the results of 160 chancres, both hard and soft, treated by daily applications of euophen and brought to a satisfactory termination. Thirteen cases of balanitis were treated with a dusting powder composed of boric acid and either 10 or 20 per cent. of euophen; the applications to the venereal sores were in

<sup>1</sup>*La Sém. méd.*, 1900, No. 11, p. 90.

<sup>2</sup>*Therap. Monatsh.*, XIV, No. 3, p. 139.

some instances modified by the addition of calomel to the euphron or the substitution at night of inunctions of white precipitate ointment or mercurial plaster.

In conclusion the author especially lays weight on the odorlessness of the preparation as well as in its lightness, which properties combine to make it more agreeable and economical to use than iodoform, while in efficacy it is second to none of the agents of its class.

**Rheumatism** and the treatment it receives at the Mt. Sinai Hospital, New York City, is the subject of a paper read by Dr. L. A. S. Bodine<sup>1</sup> at a late meeting of the New York Academy of Medicine. He dwells chiefly on acute articular rheumatism, exclusive of its complications. The first step in the treatment is to clean out the alimentary canal with calomel or some saline cathartic, and then the patient is usually at once put upon salicylate of sodium. From 15 to 20 grn. are given every four hours, well diluted with water, on a full stomach, and in most instances with an addition of a liberal amount of sodium bicarbonate in order to render the urine alkaline and maintain it in that condition during the progress of the disease. Solid food is prohibited, rest in bed insisted upon, and sponge baths of water at 75° F. to 95° F. given in order to reduce hyperpyrexia. In cases where the salicylates of the alkalis produce severe ringing in the ears, eruptions, or gastric disturbances, oil of wintergreen is tried, or the citrates or acetates of potassium are given. In nephritic subjects no salicylates of any kind are administered. Constipation is avoided by the use of saline cathartics or the giving of enemata. Excessive sweating is controlled by the use of belladonna or atropine. Pain is relieved by the use of phenacetin, acetanilid, antipyrine, or codeine. Morphine is seldom used. In conditions of sleeplessness trional, with sodium bromide, is a favorite. Sometimes chloral, chloralose, cannabis indica, or morphine is given. Nitrogenous food is avoided, and an abundance of water given. Oil of wintergreen or guaiacol is applied locally over the inflamed joints and rubber protective bandages firmly placed over it. In joint affections that have passed the ordinary inflammatory stage and show some effusion tincture of iodine, cold ice-bags, even bandaging, immobilization, and elevation of the joint, where possible, are the abortive measures followed. If in spite of treatment effusion per-

sists and there is elevation of temperature, the joint is aspirated. Should it contain pus or purulent serum it is treated as a surgical case. Where the effused liquid is absorbed, where there is still pain on motion, and where there are signs of ankylosis, local treatment is persisted in and the patient is placed on potassium iodide.

For the local treatment daily baths of hot air at the temperature of 200° F. to 400° F., for from 20 minutes to half an hour, hot salt packs, hot sand bags, local applications of iodine, galvanism, cataphoresis, passive motion, and massage are resorted to. In the majority of cases of this kind potassium iodide internally with passive motion, massage, and hot air baths have given the best results. What gives good results in one case does not always do as well in others, so it may be necessary to try several before finding one suited to the particular case under consideration. Before the convalescent stage, particularly where the attack has been long continued, iron, strychnine and quinine are given. Iron salicylate is sometimes used. Absolute rest for all cases with fever is required, and patients are kept in bed for from two to five days after the temperature has become normal.

Out of thirty-eight cases of acute articular rheumatism treated during 1899, twenty-nine left the hospital cured and nine were discharged improved.

**Varicella** treatment as pursued by Dr. J. V. Shoemaker,<sup>1</sup> of Philadelphia, is as follows: Keep the patient in the house and limit the diet to bread, milk and fruit. If there is much headache administer a saline laxative and tincture of aconite or gelsemium in proportioned doses. Where there is constipation order for the child:

Calomel..... 10 grn.  
Sodium Bicarbonate..... 1 grn.—M.

One such powder should be given every two hours until the bowels act, after which it should be continued thrice daily until recovery is complete.

The evolution and the presence of the rash may be attended by considerable itching. When this is the fact, we may very properly order some remedy or combination in order to relieve the distress. In this instance we should prescribe:

Bichloride of Mercury..... 1 grn.  
Chloral Hydrate ..... 20 grn.  
Rose Water..... } of each 2 oz.  
Distilled Water..... }

M. Sig.: For external use according to directions.

<sup>1</sup>Interstate Med. Jour., VII, p. 163.

<sup>1</sup>Med. Bul., XXII, p. 41.

# The Prescription

We wish to have our readers use this department with the utmost freedom. Any question about the prescription or about any substance used in prescriptions comes within its range. We shall do our best to find correct answers for all, and if we fail for lack of information at hand, some one of our readers may be able to give the right reply. On questions of therapeutics or practice we shall not attempt to give any opinions of our own, but find for the questioner what the best available authorities on such subjects have to say upon them. Let every reader resolve his doubts about compatibilities, doses, latest remedies, best methods of administration, dangers of remedies, etc. Send in favorite prescriptions and let others be benefited by what you have discovered. We shall give full credit for all such information. As some persons do not care to have their names appear as the authors of queries, we will refrain from giving names in this connection when requested to do so. Sometimes it is an advantage to have the writer's name published, and in such cases we hope that overdiffidence will not interfere with the right.

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**J. L. M.**, of New York, writes that the United States Pharmacopœia distinguishes carbolic acid from creosote by the ability of carbolic acid to coagulate white of egg when in contact with it, while creosote is stated not to be able to do so. He has tried both synthetic and natural carbolic acid on egg albumin, and finds that it remains fluid with only a sort of flocculent precipitate in it, whereas when he tried the same test on pure beechwood creosote he found that the albumin coagulated so hard that it could be cut. He undertook to look the matter up, and found a reference in which the author pronounced this test of the Pharmacopœia a mistake, and he refers the matter to us for confirmation. **J. L. M.** is right. The next revision of the Pharmacopœia will be pretty certain to drop the albumin test altogether. It has been dropped from other pharmacopœias. Under the head of creosote it is not referred to in the United States Pharmacopœia. There are plenty of tests of identity with which to distinguish carbolic acid from creosote without resorting to one so misleading as this. As a test of carbolic acid, to keep it from being adulterated with creosote or to avoid the substitution of creosote for it, any person who will take the pains to look up the respective articles as to price will see that to suspect such adulteration or substitution is absurd. Creosote is worth three or four times as much as carbolic acid, and no one would ever think of supplying the dearer article for the cheaper at the price of the cheaper.

**Dr. C. D. Gibson Mack**, of Boston, Mass., reports two cases that he has treated with ichthalbin successfully. The first was a young man, aged 26, who gave a history of having at various times within a few years suffered from chronic malarial poisoning, septic infection from an injury to his right hand, septic infection from an injury to his left arm, and finally the appearance of numerous crops of boils, first on his neck and then on his left forearm. He tried various drugs without benefit. Four

weeks' treatment with ichthalbin and arsenous acid, the former 60 grn. per day and the latter  $\frac{1}{10}$  grn. per day, brought increased body-weight, good appetite, and perfect restoration to health. The second case was that of a woman, aged 32, having a discouraging history of successive troubles, showing a vitiated condition of her system. Three weeks' treatment with ichthalbin, two 5-grn. capsules three times a day, cured her of a severe eczema, furuncles, and an abscess of the axilla that was opened and antiseptically dressed. Her bowels became regular, appetite improved, and skin assumed a normal color and condition.

**Dr. W. A. McCoy**, of Madison, Wis., states that he has given aqua levico a trial and adds: "I am satisfied that I received benefit from it, as improvement progressed more rapidly after beginning its use. It is my first acquaintance with it, but I do not think it will be my last."

**S. J. W.**, of Michigan, wishes to know if lactic acid exists naturally in the gastric juice, what it is converted into in the body, how it is eliminated, and what kind of food produces the largest amount of it. Lactic acid at one time was supposed to be the special acid of the gastric juice necessary for digestion. Later on this was found to be a mistake, and hydrochloric acid was proven to be the digesting acid. It is probable that lactic acid is nearly always present in the stomach during digestion and is produced there from the sugars or starch of the food. While it is producible from other sugars, it is the constant product of milk sugar when milk is attacked by the lactic acid ferment. Sour milk is sour because of its presence. The mucus of the stomach is believed by some to have the power of forming it from dextrose and thus from starch and cane sugar after they are acted upon by ptyalin and invertin respectively. Lactic acid, as sarcocactic acid, is found in most parts of the body, and is derived from muscle. One of the simplest methods of se-



curing samples of this kind of lactic acid is to extract it from Liebig's extract of beef. It is broken up in the body to carbon dioxide and water, and is eliminated by the kidneys and lungs.

**Dr. T. Blair**, of Harrisburg, Pa., writes: "Thiocol I am using myself, as I have been suffering from an aggravated follicular throat difficulty. It is certainly benefiting me. I have three cases of bronchial and pulmonary difficulties, using it thus far with advantage. . . . Orexine tannate I am using to excellent advantage in a case of persistent vomiting and nausea, due to the pressure of a large inoperable abdominal tumor. A couple of other cases have not yielded so positive results. One is an infant suffering from malnutrition, and the other is an adult suffering from atonic dyspepsia. The latter is benefited somewhat, but the former shows no change as yet. Dionin gives in my cases a quite prolonged action. The claim that it stimulates expectoration seems to be substantial, but it does considerably derange the digestive tract when given in anything like full doses, although not nearly so much so as morphine. It seems to me to give results almost identical with those given by codeine, although more prolonged and facilitating expectoration to a greater degree. It always gives me pleasure to test new drugs, and I have used in practice afterwards probably one-third of those tested."

The following list of prescriptions for use in eczema have been selected from current medical journals to illustrate to our readers the various methods of treating this affection by different practitioners.

#### Eczema Marginatum:

Mercury Bichloride..... 6 grn.  
Ichthyol..... 2 fl. dr.  
Distilled Water..... 2½ fl. oz.

Paint on night and morning and then dust the part with starch.

—UNNA, *Cent. f. die ges. Ther.*

#### Scalp Eczema:

Bismuth Subnitrate..... 30 grn.  
Cold Cream..... 1 oz.

Apply night and morning.

—VAN HARLINGEN, *Louisville Med. Monthly*.

#### Eczema of the Palm:

Sozoidole Sodium..... 2 dr.  
Zinc Oxide..... 5 dr.  
Petrolatum..... 10 dr.

Apply twice daily.

—HALE, *Cleveland Med. Gaz.*

#### Itching in Eczema:

Chloral Hydrate..... 30 grn.  
Powd. Camphor..... 30 grn.  
Carbolic Acid..... 10 grn.  
Peru Balsam..... 1 dr.  
Menthol..... 20 grn.  
Zinc Oxide Ointment..... 1 oz.

Apply night and morning.

—*Medical World*.

#### Chronic Eczema of Hands:

Iodine..... 3 grn.  
Potassium Iodide..... 8 grn.  
Glycerin..... 6 fl. dr.

Apply every night and cover the hands with compresses.

—EDELSEN, *Therap. Monats.*

#### Chronic Eczema:

Formaldehyde..... 1 drop.  
Zinc Oxide..... } of each, 100 grn.  
Talcum..... }  
Vaselin..... 400 grn.

Apply externally.

—*Pract. Med.*

#### Infantile Eczema:

Solut. Lead Acetate..... 1 fl. oz.  
Glycerin..... } of each, 4 fl. oz.  
Water..... }

Apply two or three times a day with a camel's-hair brush.

—SMITH, *Louisville Med. Monthly*.

#### Chronic Eczema:

Zinc Oxide Ointment..... }  
Lead Subacetate Ointment..... } of each, 4 dr.  
Chloral Hydrate..... } of each, 15 grn.  
Powd. Camphor..... }

Use two or three times a day, preceding the application with a warm bath.

—*Gaillard's Med. Journal*.

#### Eczema:

Bismuth Subnitrate..... 3 oz.  
Zinc Oxide..... 30 grn.  
Glycerin..... 12 fl. dr.  
Carbolic Acid..... 20 grn.  
White Vaselin..... 6 oz.

Use night and morning.

—MACKINTOSH, *Gaillard's Med. Journal*.

#### Moist Eczema:

Solut. Lead Subacetate..... 2 fl. dr.  
Powd. Zinc Oxide..... 2 dr.  
Glycerin..... 6 fl. dr.  
Lime Water..... to make 6 fl. oz.

Apply several times a day.

—HEARN, *Dunglison's Col. Clin. Record*.

#### Scalp Eczema in Infants:

Salicylic Acid..... 16 grn.  
Zinc Oxide..... 77 grn.  
Hydrous Wool-fat..... 1 oz.

Apply externally.

—*Louisville Med. Monthly*.

# Correspondence

## USE OF A TAMPON IN POST-PARTUM HEMORRHAGE

In the article, "Use and Abuse of Ergot in Obstetrical Practice," written by me, and published in MERCK'S ARCHIVES, II, No. 3, p. 90, occurs the following in answer to the question. How often ergot may be used in post-partum hemorrhage: "As often as will be necessary to get its effect, but other measures must not be forgotten, such as the usual manipulation with the hand over the tardy womb. Ergot requires time for action, and the other measures will secure it. Hot water, the tampon, the inserted hand for the removal of clots and provoking contractions are sometimes necessary helpers." In a communication addressed to the ARCHIVES, Dr. H. P. Coile, after a very flattering reference to the article, makes an equally kindly criticism of my use of the word tampon, in the above extract, as misleading. A copy of this was kindly transmitted to me. Below is my answer.

The article was on the use of medicine and only incidentally touched on obstetrical operations when necessarily coupled with the use of the medicine, and my space was limited. In regard to the use of the tampon during post-partum hemorrhage, I wish to say that I used the term advisedly and after due reflection, but did not suppose that I had made a discovery or was accustomed to doing anything which was not well known to all accoucheurs, therefore I omitted the technique of the operation. I used the term in its proper and broadest sense, as something acting as a plug to stay the flow of blood and favor the formation of nature's tampon—the blood clot. If the text be examined, it will show that its use was suggested as an assistant while awaiting the action of ergot in causing contraction of the uterus; and, also, while external manipulation was taking place, it was coupled with the intra-uterine hot water injection and the inserted hand to remove clots and provoke pains. Dr. Coile evidently understood my meaning and was right in supposing that the tampon was to be aseptic or antiseptic and intra-uterine; it might also be rendered astringent by the use of some harmless agent that would cause quicker clotting; it should be of gauze and not excessively large, as it needs only to form a nucleus for the addition of the clotted blood. The tampon is best introduced in strips folded back and forth and put in place by uterine dressing forceps, while the perineum is retracted with a duck-bill speculum. The strips should be united firmly at their ends, and one end left protruding from the vulva. Its presence will stimulate contraction, acting like the inserted hand, and it will usually be expelled within one half-hour; but should it be shut in the protruding end will be available for its removal,

which should be gradual, so as to allow of steady contraction and expulsion of clots as it is pulled away. Of course, a vaginal tampon would be of little use here, as it would not excite uterine spasm and would necessitate a larger clot and greater loss of blood; such an obstruction would be better than none, since a clot would surely form and the uterus would not dilate if external manipulation and ergot were being used. I should object to it simply as not being the best and hence not admissible in a case where death is imminent, unless speedy relief is obtained.

Had I said intra-uterine tampon, this communication would not have been necessary; but, perhaps, this explanation of the use of the tampon and its technique will be of value to any one who has been in the habit of regarding a tampon as having only one meaning, and who may not be acquainted with the method as a means of saving life.

The method has been most successful in my hands, and is not in any sense difficult for doctor or patient. There would be no danger in the use of astringents, such as embolism, since the flow of blood is entirely outward and the cavity is so soon evacuated by the clot.

Weak solutions of alum, hydrastes, and hamamelis may be used, but iron never; afterwards antiseptic vaginal injections should be given with the patient's hips elevated, so that the solutions will enter the uterine cavity. After a short retention, they should be discharged by letting down the hips and elevating the head and shoulders. I like this better than the intra-uterine douche in the hands of an ordinary nurse.

J. H. JACKSON.

155 Franklin street, Fall River, Mass.

## Publications Received

A SYNOPSIS OF REPRINTS on the Treatment of Stricture, Urethritis, Prostatitis, Cystitis, Impotency, and Spermatorrhea with Electricity, Cataphoresis, and allied remedies, as taken from the *Mississippi Valley Medical Journal* of March, 1883, and August, 1887; *Medical Mirror* of April, 1896, and the *Journal of the American Medical Association* of January 21, 1899. By G. M. Overall, M.D., St. Louis, Mo., late professor of physiology and electro-therapeutics in the Memphis Hospital Medical College.

THE PRACTICAL TREATMENT OF CARBOLIC-ACID POISONING. By Stephen Harnsberger, Catlett, Va. Reprinted from the *Charlotte Medical Journal*.

STRICTURE OF THE ESOPHAGUS and Electrolysis by a New Esophageal Electrode. By Charles D. Aaron, M.D., Detroit, Mich., Consulting Gastro-Enterologist to Harper Hospital. Reprinted from the *Physician and Surgeon*, September, 1899.

# Book Notices

GOULD & PYLE'S *ENCYCLOPEDIA OF MEDICINE AND SURGERY* is one of the most valuable additions to medical literature of the past decade. The original object in preparing the book was to make it a companion volume to Dr. Gould's *Dictionary of Medicine*. It has grown considerably in the hands of the editors and the plan has been enlarged so as to include a large number of special contributors. The work is a practical one, containing a vast number of short, pithy articles, many valuable formulæ, and a large amount of information in tabular form. Diagnosis and treatment have received particular attention, and this includes the slighter ailments which are so often overlooked in the text-books, although of great value to the busy physician. The scope of the work is very general, embracing the entire subject of medicine and surgery, thus including *materia medica*, obstetrics, therapeutics and the various specialties. The contributors number seventy-three, the subjects are alphabetically arranged, and the work is a credit both to the editors and publishers. (Philadelphia: P. Blakiston's Son & Co. Quarto, illustrated, sheep, or half-green leather, \$10; thumb index, \$11; half Russia, thumb index, \$12.)

*DIE ROHSTOFFE DES PFLANZENREICHS*, by Dr. Julius Wiesner, professor of plant anatomy and physiology at the Vienna University, is now being published in a second completely revised and enlarged edition. The work is to be completed in 10 parts, the first of which, comprising 160 pages, has now been received. It is intended that the products of the entire vegetable kingdom shall be exhaustively treated of, microscopically, physically, and chemically, and the subject matter profusely illustrated. The first part comprises an introduction, followed by a chapter on the gums, and an unfinished chapter on the resins. The work evidences great care in its elaboration, and promises to be a most valuable, if not almost indispensable, addition to the library of the chemist, pharmacist, botanist, in fact all who are interested in plant products. The typographical features and cuts are excellent, and the paper of very good quality. (Leipzig: Wilhelm Engelmann. Price, each part, 5 marks.)

*STRINGTOWN ON THE PIKE*, now running serially in *The Bookman*, is a combined novel and study of life in Kentucky during the closing days of the civil war, by John Uri Lloyd, professor of chemistry at the Eclectic Medical Institution of Cincinnati. The eminent author has confined his literary efforts chiefly to pharmaceutical and chemical subjects, but is known more generally for his "Etidorpha, the End of Earth," a book of speculative fiction. Mr. Lloyd's family moved to Kentucky when he was very

young, so that the boy grew up among and learned to love the people and scenes of the Blue Grass State which he describes so charmingly and instructively in his latest work of fiction. (New York: Dodd, Mead & Co., publishers of *The Bookman*. Price \$2 per year; 25 cents per number. Clubbing rates.)

PART III. of the *LEHRBUCH DER HISTOLOGIE UND DER MIKROSKOPISCHEN ANATOMIE*, by Dr. Ladislaus Szymonowicz, has just been published. As already stated in these columns, the work is to be completed in five parts. This third one maintains the reputation for excellence won by the previous volumes. It treats of the heart, lymphatics, spleen, thyroid, carotids, and digestive system. The latter is divided into sections, beginning with the buccal cavity, and the treatment in this issue extends to the intestines. The whole is profusely illustrated, some of the colored plates being particularly handsome and well done. The work is most instructive, and is very creditable to the author and publisher, A. Stuber (C. Kabitzsch), Wurzburg.

*PARALYTIC DEFORMITIES OF THE LOWER EXTREMITIES; THE PRINCIPLES OF THEIR SURGICAL TREATMENT* is the title of a ninety-nine-page monograph, with fifty-one illustrations, written by E. Noble Smith, F.R.C.S., \*Edin., and L.R.C.P., Lond. The scope of the book embraces a review of the general aspects of these paralytic deformities, and questions as to the most effectual treatment are discussed. Typical examples are given in order to illustrate and explain the general principles of surgical treatment. (London: Smith, Elder & Co., 15 Waterloo place. Price, \$1.25.)

The gradual differentiation of genito-urinary practice from dermatology has resulted in the establishment of two specialties widely separated from each other. The term "venereal specialist" is to-day applicable to one who has confined himself to the limits formerly covered by genito-urinary practice. The dermatologists form a class by themselves, and the field is one requiring a high degree of diagnostic skill and training. The genito-urinary practitioner has become an accomplished surgeon, and owing to the constant accumulation of knowledge in that department the specialty has become a very important part of surgical practice. This will be apparent on reading some of the more modern works, such as *GENITO-URINARY DISEASES*, by Eugene Fuller, M.D., professor of genito-urinary and venereal diseases in the New York Post-Graduate School, visiting genito-urinary surgeon to the Post-Graduate Hospital, etc. This work embraces some 774 pages, octavo, with numerous diagrams and illustrations, many of



them original. The typographical style of the volume is a good specimen of the publisher's art in book-making. The author opens the subject by general bacteriological and surgical considerations as regards the urine, and then takes up the subject of animal parasites affecting the genito-urinary system, devoting an interesting chapter to it; following are some twenty-two chapters devoted to the diseases of the different organs composing the genito-urinary system, including their treatment by operative and other means. The chapter on the seminal vesicles contains much that is comparatively new to the general practitioner. The chapter on the sexual function is especially interesting and cannot fail to prove instructive. (New York: The Macmillan Company, 66 Fifth avenue. Price, \$5.)

Another addition to the library of the physician, recently published, is *THE MEDICAL DISEASES OF CHILDHOOD*, by Nathan Oppenheim, A.B., M.D., attending physician to the Children's Department of the Mt. Sinai Hospital Dispensary. This work contains 101 illustrations in half-tone and 19 charts. The quality of the paper used in the book is especially adapted to bring out the details of the illustrations, most of which are microscopical sections of normal and pathological tissues. Great stress is laid by the author upon the photomicrographs of 'pathological sections, which, as he states, are of greater didactic value than pictures of instruments, photographs of patients, or representations of surface changes, all of which must, on account of the limitations of fidelity in reproduction, convey either a trivial or one-sided impression. The work is entirely up-to-date, both as regards modern methods of diagnosis and treatment, and the chapter on the general hygiene of the new-born child, although short, contains much information that should be utilized by the physician in advising the inexperienced mother. The chapter on "Feeding" is especially good for those responsible for the care of the young. (New York: The Macmillan Company, 66 Fifth avenue. Price, \$5.)

*INJURIES TO THE EYE IN THEIR MEDICO-LEGAL ASPECT* is the title of a small volume of 160 pages, by S. Baudry, M.D., professor in the Faculty of Medicine of the University of Lille, France. This work achieved such reputation in France as to demand a second edition, which in time was sent to Alfred J. Ostheimer, Jr., M.D., of Philadelphia, for inspection and translation if deemed sufficiently interesting and useful. The English edition is, accordingly, now presented to the profession, revised and edited by Charles A. Oliver, A.M., M.D., attending surgeon to the Willis Eye Hospital, Philadelphia. Traumatic lesions of the eye and of the adnexa are seen almost daily by physicians

practising in industrial localities where metal factories, machine shops, quarries and mines predominate. Many such injuries produce dimness of vision or give rise to complete blindness, and thereby, at times, become the basis of suits for damages. This book is written to meet the needs of physicians in this connection. The legal portion of the book was originally written by Professor Jacquey, of Lille, but in the present work it has been adapted to the courts of the United States by Charles Sinkler, Esq., of the Philadelphia Bar. (Philadelphia: The F. A. Davis Company, 1914-16 Cherry street. 161 pages. Price, \$1, net.)

*THE INTERNATIONAL MEDICAL ANNUAL AND PRACTITIONER'S INDEX* has seen its eighteenth year. No fact can bear better testimony to its worth than this. The volume for 1900 presents a series of articles that cover, as nearly as possible, the whole range of medicine and surgery. Much of this work is original matter of a practical nature, especially helpful to the busy practitioner. Probably in no one volume of its size can be found more valuable material in a form for ready assimilation, at such a moderate cost. The list of contributors embraces a selected number of leading practitioners throughout the world. (New York: E. B. Treat & Co., 241-243 West Twenty-third street. Price, \$3.)

A new edition of *GOULD'S POCKET MEDICAL DICTIONARY* has been issued, containing a total of 30,000 medical words, pronounced and defined. The tables of clinical eponymic terms, of the arteries, muscles, nerves, bacteria, bacilli, micrococci, spirilla are unusually complete, and definitions are set forth in terms easily understood by the student. The dose-table contains a list of drugs and their preparations, including all of the more recent additions to the materia medica. The volume is attractively bound in morocco, with gilt edges. (Philadelphia: P. Blakiston's Son & Co., 1012 Walnut street. Price, \$1.)

*MEDICINE* is the subject of Bulletin No. 8, in the series "Professional Education in the United States," being issued by the University of the State of New York. This volume was prepared by Henry L. Taylor, Ph.D., under the direction of James Russell Parsons, Jr., M. A., director of the College Department. The interesting introduction is by Director Parsons, and includes early medical schools, medical sects, hygiene and state medicine, and a synopsis of present requirements, etc. Then follow professional requirements; rules or regulations by states; synopsis of legal requirements by states and statutes. The information thus compiled is a boon alike to the busy physician and editor. (Price, 45 cents.)

# MERCK'S ARCHIVES

OF

## THE MATERIA MEDICA <sup>AND</sup> ITS USES

A MONTHLY JOURNAL FOR THE PRACTICING PHYSICIAN  
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### The Sources of Modern Materia Medica

A COMPREHENSIVE glance at the vast scope of our modern supply of remedial agents and at the sources from which they are obtained is of unusual interest at present because of the activity of scientific workers in seeking to extend it into still other domains. Every part of nature is now called upon to supply man with some substance or some power to administer to his wants when he is sick. The vegetable world, the mineral world, the animal world, the air we breathe, and even the unseen universal ether have each been called upon to contribute a share toward relieving suffering or calling back health to the ailing. The chief source of supply is the vegetable kingdom, and it bids fair to remain so for all time, although it is dangerous to predict in the presence of the immediate activity of research among serums, animal ferments, toxins, and anti-toxins. In a broad sense it is still proper to say that "the leaves of the trees are for the healing of the nations." Even the new synthetics are but the representatives of the vegetable world of long ago. In the application of electricity we probably find the most basic form, cosmically considered, of all remedial agents. Following this would

come heat and light. These are all ethereal manifestations. The first and simplest of material remedies are, of course, the elements. Among these we find sulphur, iodine, chlorine, phosphorus, mercury, and oxygen, with its allotropic form, ozone. Next above these come the mineral remedies, then the aromatic group of the synthetics, then the extracts, decoctions, and tinctures of vegetable drugs, then the active principles of these drugs and, finally, the animal products. During the whole history of the growth of medicine there has been an incessant trend toward the securing of essences or definite principles in which are lodged the special virtues of the drugs. Practically this amounted to the obtaining of purer and purer products by the freeing of the true remedial substances from extraneous, inactive, associated bodies. This effort has been something in the nature of a protest against nature for diluting (or shall we say adulterating?) the medicines she has provided us with. The hunt for the elixir of life and for the philosopher's stone, carried on so earnestly during the dark ages, was the same in nature as the hunt still going on for new alkaloids, glucosides, ferments and neutral principles.

It was the earlier, misdirected line of research that finally settled down to the more rational, modern one. When Sertürner, the Einbeck apothecary, announced his discovery of "morphium" and showed that it was the active principle of opium, the first step was taken toward the unraveling of nature's medical mysteries. This *sanctum sanctorum* came very near being entered twelve or fourteen years earlier by Dr. Duncan, of Edinburgh, Scotland, when he produced his "cinchonin" from cinchona bark. As his product was still a mixture and not a single, crystalline principle, he lost the honor that fell to the German apothecary. It did not take long, however, to discover that even pure alkaloids do not fully represent the medicinal virtues of such drugs as contain them. Most of these drugs contain more than one alkaloid and some of them a large number. Both opium and cinchona are among the latter class. The effect of the drug is thus seen to be a resultant and not the effect of a single kind of activity. In some cases, indeed, the contained active principles are antagonistic to each other. It thus turns out that the early idea of a definite essence representing the total virtues of a drug is a myth. No such definite essences exist. In drugs like digitalis, where the active principles are not alkaloids but glucosides, the same thing is true. Here too the originally noted virtue of the drug is a resultant of a combination of more than one active agent, some of which, within the same drug, may be positively antagonistic. As we advance upward to the serums we observe that this condition of things is general throughout the entire field of our *materia medica* and that the polypharmacy that some have decried is really nature's original way of supplying us with our medicaments. To merely prescribe opium is to order a long list of active medical substances that if separately enumerated upon a prescription would lay the prescriber open to censure for excessive polypharmacy. Recently a good deal of activity has been manifested in the altering slightly of the chemical structures

of various alkaloids so as to improve them in certain phases of their medical power. This is among the most recent of the sources from which the new drugs have been supplied. When the owner of a house improves it by adding a new wing, a new bay window, a new cupola or a new style of roof to it without in any way disarranging the main structure, he does for that house just what the chemist does for an alkaloid when he adds, by condensation to its molecular form, some new radical. Here man improves on nature just as the architect improves on the original design of the house to which he has made a new addition. It is in this way that dionin has been constructed from morphine and euquinine from quinine. Nor is this kind of change confined to alkaloids alone. The production of thiocol from guaiacol was a task of the same kind. In this sort of work the chemist has but patterned after nature, since the production by the plant of its higher and usually more active products from its lower and less active ones was along the same line of synthesis. In proportion to the amount of change made in the structure of a molecule, even so is the change in its properties. To alter its main, central radical is to completely alter or very markedly modify its medicinal properties. To merely change the relative places of the grouped radicals would profoundly alter its powers if the alterations of place happened to be numerous or central. Such changes, in dealing with known alkaloids, are not at present being pursued, but the minor changes that but slightly alter the structure are now creating great interest, both because of theoretical and practical business considerations. When a slight change in the structure of the quinine molecule removes completely its disagreeable bitterness without altering its fundamental shape or changing its peculiar antiperiodic qualities, it is evident that a decided and valuable improvement has been made. Such was the step made in the production of euquinine from quinine, according to the reports of world-famous therapeutists.



# Aqueous Extract of the Suprarenal Gland

A CLINICAL AND EXPERIMENTAL STUDY OF ITS LOCAL USE

By LEWIS S. SOMERS, M.D., Philadelphia, Pa.

RECENT developments in the preparation of animal extracts, and their application in varied diseases, have led to more definite studies of organotherapy and especially of the suprarenal glands. Not until recently, however, has the adrenal been shown to possess remarkable powers as a hemostatic and vaso-motor constrictor, and it is here desired to formulate the results obtained by the local use of the aqueous extract of this gland in a series of individuals, for the purpose of determining, as far as possible, its value.

The adrenal gland, or capsule, as it is frequently designated, consists of two distinct portions, the cortex and the medulla, while the active principle is a product of the normal glandular metabolism.<sup>1</sup> In 1897 Velich<sup>2</sup> stated that a marked pallor was produced when a solution of adrenal was dropped in the eye, or when it was placed on granulating surfaces, as eczematous patches, etc., while Bates<sup>3</sup> from his studies concluded that as a pure astringent in all inflammations, as a hemostatic and as a tonic to muscle fibers, no therapeutic agent has been employed which can compare with the extract of the suprarenal gland. Before proceeding to a study of the local action, it will be well to briefly outline the general physiological action and the results obtained therefrom. Lawandowski<sup>4</sup> found that when an aqueous solution was injected into the veins of cats, there resulted dilatation of the pupils, orbital protrusion and raising of the eyelids, symptoms indicative of irritation of the sympathetic ganglia of the neck. The physiologic results appeared very rapidly, lasted but a short time, and indicated strongly that the action of the drug was exerted peripherally. There also takes place, as shown by Cyon<sup>5</sup>, an enormous rise of blood pressure, apparently depending upon stimulation of the vaso-constrictor nerves, the cerebral centers and the ganglia in the blood vessels. Cyon also found

that the extract was a powerful stimulant to the sympathetic nervous system of the heart and the vessels (accelerators and vaso-constrictors), and it had a paralyzing action upon the regulator nerves of these organs, as well as upon the vagus. Oliver<sup>6</sup> and Schafer<sup>7</sup> showed that the rise of blood pressure occurs after the cord has been sectioned high up and the medulla has been destroyed; proving that it is the result of the direct action of the extract upon the muscular fibers of the heart, blood vessels or both. It can readily be appreciated from these results that its local action is marked; so much is this so, that from clinical and experimental studies, one is forced to acknowledge that it is immeasurably superior to any local astringent that we possess.

The non-toxicity of the drug renders it peculiarly applicable in the treatment of congestion and inflammation of mucous surfaces; and in the cases where adrenal was used there were no deleterious effects, even when from fifty to one hundred grains were placed in the nasal chambers. Idiosyncrasies towards the drug were not observed, and in all cases in which it was used for a considerable period of time (over two months) no ill effects were seen. Not only is it harmless in itself, but to a marked extent prevents the toxic effects of cocaine. In every case in which I used it with the addition of cocaine, no toxic symptoms of the latter were manifested except in one, a male, age 34 years, with nasal obstruction. Moderate toxemia developed, which, however, passed away in a few minutes. In operations upon the upper respiratory tract, a two-per-cent. cocaine solution, followed by adrenal extract, will produce complete anesthesia, the adrenal contracting the vascular channels and retaining the cocaine in the tissues. Thus if the drug did nothing else, it would be of great value in eliminating the dangers of

cocaine poisoning when used for local anesthesia, especially where absorption takes place rapidly, as in the urethra and nose. Oliver gave large doses to cats and dogs without producing serious symptoms, while Ringer and Phear<sup>8</sup> report a case of Addison's disease in which they gave 420 grains daily without bad effect. The solutions are non-irritating, possess no deleterious after-effects and may be repeatedly used on the same individual without losing any of their power, no injurious effects being observable on the tissues. No danger of contracting a habit can exist, as the action of the drug is purely local; the vascular contraction being so great that absorption is for the time prevented.

Our knowledge of the chemical properties of adrenal extract is limited, and numerous observers are striving to obtain an active principle that will resist bacterial action, as the solutions decompose within a short time on account of the large amount of animal matter present. Chittenden<sup>9</sup> believes that there exists in the gland two distinct bodies physiologically active, one being the blood pressure elevating principle, while the other paralyzes the heart muscles and produces death from asphyxia. The medulla is the only portion which is active, and is valuable either in the fresh form or when dried and powdered, being soluble in water and dilute alcohol, nearly insoluble in absolute alcohol; incompatible with most drugs, especially cocaine, and it is not destroyed by mineral acids, although weakened by alkalies. Abel and Crawford<sup>10</sup> isolated the blood pressure raising principle and classified it as a pyridine base or alkaloid and also obtained it in the form of a picrate and sulphate, while Corona, Maroni<sup>11</sup>, and Langlois<sup>12</sup> from experiments on frogs, found two antagonistic principles in the gland.

The chief objection to the practical use of the extract is the difficulty of obtaining a stable solution that will retain its full power and yet remain sterile. With this view in mind, a number of formulas were used in several hundred cases and for varied purposes, and it was found that such a solution could be prepared, retain-

ing its efficiency and remaining undecomposed for several weeks. The aqueous solution is made by macerating ten grains of the desiccated extract in one dram of sterile water for ten minutes and filtering. This makes a clear solution of a light brown color, with a slight animal odor and at a temperature of 60° to 70° F., will resist putrefaction from twenty-four to forty-eight hours. It was found, however, in endeavoring to ascertain the weakest active solution, that five grains was the minimum that would produce a maximum action, while three grains to the dram will produce constriction, but not to the extent previously mentioned. Evidence of putrefaction is shown by the animal odor and the production of a precipitate, but a peculiar effect was elicited, inasmuch as the degree of putrefaction in no way impaired the value of the extract, the power remaining unaltered, even when an extreme degree of decomposition had taken place. Glycerin in from ten to twenty-five per cent. will prevent putrefaction for several days, and when the glycerin solution is placed in the nares and allowed to remain for five minutes, the parts are rendered bloodless, while the lumen of the minute arterioles is entirely obliterated; the action being limited only to the parts with which the drug came into contact; in other words, the action of adrenal extract does not extend beyond the point of contact as does cocaine, but is definitely limited to a given area.

But a small proportion of the desiccated powder is soluble, and a large residue is left on the filter paper. Newcomb<sup>13</sup> found that after macerating sixty grains with two drams of water and allowing it to stand for several hours, only thirty grains had dissolved, giving a maximum strength of solution of fifteen grains to the dram. My experiments corroborated this point, the amount of residue remaining on the filter paper being dependent upon the degree to which maceration and trituration were carried on; the greater the amount of trituration the thicker became the consistency of the mass, and the larger the magma remaining. Acting upon this, the residue

from the former solution was added to one ounce of a twenty-five per cent. watery glycerin solution, allowed to macerate and filtered, and it was found that the mucosa contracted in all respects as with the original solution; but the blanching was not nearly as well marked, the blanching apparently being more soluble than the purely constricting principle, and was therefore contained in excess in the previous solution.

When applied to a mucous membrane, the parts are shrunken and rendered absolutely bloodless, this action being well shown in a case of vaso-motor rhinitis, a male, age 18 years, where the turbinal tissue completely occluded both nasal chambers. Adrenal was applied, and in five minutes no trace of obstruction existed. It was found that adrenal solution, when applied to an inflamed mucous membrane, will produce absolute blanching in five minutes, marked action being shown at the end of three minutes. Vansant<sup>14</sup> uses the following formula, which while satisfactory, does not give the full physiological action:

Boric Acid.....11 grn.  
Camphor Water,  
Distilled Water .... ññ ½ fl. oz.  
To 1 dr. of this add 5 grn. adrenal, and filter.

The activity of the extract is not impaired by prolonged boiling, and may be repeatedly sterilized in this manner, while a solution composed of ten grn. of adrenal to one dram of water and boiled for several hours, and filtered, will remain perfect for one week or more. The following formula used by Ingals<sup>15</sup> will remain undecomposed from three to five weeks:

Adrenal..... 15 grn.  
Boric Acid..... 4 grn.  
Cinnamon Water..... 1 dr.  
Camphor Water (hot)..... 2 dr.  
Boiling Water.....q. s. ad ½ fl. oz.  
Macerate four hours; filter.

This is useful in mild congestions to reduce swelling and contract the peripheral arterioles, but it cannot be depended upon to control hemorrhage or subdue active inflammation. Boric acid will prevent putrefaction from three to five days, in the proportion of twenty grains adrenal to a half ounce of saturated boracic acid solu-

tion; but while not permanent enough to warrant its use as a preservative, it will retain its properties for several weeks. With this solution, bleeding from the nasal septum was controlled immediately and the parts absolutely blanched without the further appearance of a trace of blood. Alcohol in the proportion of one minim to the dram of the aqueous solution will preserve it for three days; salicylic acid, one grain to the dram, will in no way alter its value, and the solution may be kept from four to six weeks; and carbolic acid in the same proportion will preserve it for several months and in no way impair the physiological activity.

When it is desired to control inflammation or bleeding and produce anesthesia of the mucous membrane, and as a valuable local application in hay fever, the following formula will be productive often of marvelous results:

Adrenal..... 20 grn.  
Phenic Acid..... 2 grn.  
Eucaine B..... 5 grn.  
Distilled Water..... 2 dr.

Macerate ten minutes; filter.

This solution is permanent, will not decompose nor lose its physiological activity for several months. In a boy of fourteen years, with severe epistaxis, the blood pouring from both nostril and mouth, the solution was applied to the mucous membrane of the nose, and within two minutes all evidence of hemorrhage had disappeared, and what was formerly a bleeding area was completely exsanguinated and the vessels firmly contracted.

As suggested by Wright,<sup>6</sup> adrenal used alternately with orthoform will prove of value in hay fever and painful congestions with eroded surfaces of mucous membranes. Any of the solutions mentioned may be used to massage the inflamed mucosa, and in a number of cases in which I used this method congestions were readily dissipated and much relief obtained. In the eye it exerts no local or general effect aside from that on the vessels, and this also holds good for all mucous membranes to which it is applied, the astringent, constricting effect being the major action of the drug. When applied to any mucous



surface there ensues a constricting and blanching, whether the tissue is inflamed or normal, and the ischemia so produced is more or less complete, depending upon the time and method of application and the strength of the solution used. In a number of individuals of varied ages and both sexes the extract was used to determine the relation between the blanching and the contraction, and in every case it was found that the parts invariably blanch first and then contract immediately afterward. In a number of cases the physiological action was plainly evident at the end of twenty-four hours, gradually passing away and leaving the parts as before; and, dependent upon the character of the tissue, the strength of the extract and the manner of application, the action lasts from one and one-half to twenty-four hours, commencing within twenty seconds after the drug has been applied, the maximum being attained in five minutes.

The activity depends upon the contractile power of the extract on the small arterioles and basement membrane, and is more prominent where it can remain in contact with the tissues for several minutes than in positions where this is not the case, for this reason being more marked upon the nasal, conjunctival, and rectal mucosa than upon that of the pharynx or larynx. It is evident from the tonicity of the tissues after the adrenal has been used that the drug is a muscle tonic, the question being whether this action is exercised directly upon the muscle protoplasm itself or upon the nerve centers, and from my experience I am inclined strongly to the opinion that the former is the correct explanation. No effect whatever is observed on the unbroken skin, and in no way does the drug produce local anesthesia, but it increases to a great extent the anesthesia of other agents by retaining them in the tissues.

When used to prevent hemorrhage in operative procedures it should be applied to the parts desired, then cocaine applied and the adrenal again repeated. The parts so treated become absolutely blanched, totally anesthetic, and vessels of considerable size may be incised without bleeding. Mullen<sup>17</sup>

says that adrenal modifies the post-operative swelling, accomplishes a more rapid healing of the parts, and minimizes the danger of secondary hemorrhage. In all the operations which I have performed, and in which I have used the extract, the results were in every way more favorable than before this drug was used, and it could readily be appreciated that the anesthetic effects of cocaine were not only increased, but, by its retention in the tissues, prolonged. When cocaine is used alone the post-operative swelling is much enhanced, but just the opposite occurs when adrenal is used in conjunction, as the latter does not paralyze the parts and a certain degree of vaso-motor tonus results, which greatly lessens swelling and induces more rapid healing. The effect upon the secretion is to diminish the flow of mucus as long as the parts remain under the control of the drug, and when the effects wear off the secretion returns to its normal condition.

The indications for the practical use of the adrenal extract are in a great measure disclosed by a study of its physiological action. All local congestions, both acute and chronic, of the mucous surfaces are wonderfully influenced, and in granulating areas, whether upon mucous or dermal surfaces, much good can be accomplished in restricting the exuberant tissue. The drug is indicated in all conditions of the mucosa characterised by loss of vaso-motor tonus, and is especially valuable in those cases where cocaine loses its anesthetic properties in consequence of excessive hyperemia. It is unnecessary here to point out the indications for the use of the extract in ophthalmic practice, as this has been fully discussed by Bates, Howe<sup>18</sup> and others, especially its use in operative procedures and varied forms of conjunctivitis. In acute inflammations of the tympanic membrane and middle ear, and in all conditions of the external canal with the presence of granulation tissue, the drug has a wide field in reducing congestion. In a girl of twelve years, with chronic aural suppuration and bloody discharge for two years, due to a mass of granulation tissue, the application of adrenal solution was followed by a ces-

sation of the hemorrhage and a marked change in the character of the discharge, and, of still greater import, the constricting action was so decided that the granulation tissue entirely disappeared. Thompson<sup>19</sup> has also called attention to this and recommends it for the reduction of exuberant granulation tissue.

In the nose adrenal has its widest application in acute congestions and in "certain chronic conditions of the hay fever type, where redundant tissue seems apt to develop,"<sup>20</sup> and is of immeasurable value in controlling the acute paroxysms of hay fever. Vascular engorgement can always be relieved by the drug, and it is of much service in aborting an attack of acute coryza by contracting the turgescient tissues; and, finally, what were formerly major operations, on account of the profuse blood flow, are now no longer so, as primary hemorrhage cannot occur and secondary hemorrhage is much less liable to take place. The aqueous extract is indicated in all acute inflammations of the pharyngo-laryngeal mucosa, as it will often control hyperemia, and frequently abort an incipient inflammation, its value being enhanced by the addition of appropriate treatment used in conjunction. Sargnon<sup>21</sup> used the drug in ten-per-cent. solution in six cases of hyperemic laryngitis with favorable results, and Curtis<sup>22</sup> used it in painful and mild forms of laryngitis of singers with marked benefit.

Quinlan<sup>23</sup> reports a case in which he removed a fibroma from the naso-pharynx with a cold snare under the local influence of cocaine and adrenal and no bleeding resulted, while Lermite<sup>24</sup> used it in a case of persistent epistaxis which occurred at irregular intervals for two years and could not be controlled by local or general medication. Adrenal was applied at intervals and the hemorrhage absolutely ceased, not again to return. In a case of cyst of the posterior cervical region, a pledget of cotton saturated with the solution was placed over the incision and the hemorrhage was absolutely controlled. Lederman<sup>25</sup> says that "in operations upon the nose the fear of blood, especially in neurotic patients,

can be subdued, as adrenal will produce practically a bloodless operation."

On account of its remarkable power to prevent hemorrhage a wide field exists for the drug, especially in laryngology, gynecology, and genito-urinary operations, and in all minor and some major operations in various parts of the body. It may be introduced into the tissues by cataphoresis, when its action is to a certain extent prolonged, or it may be sprayed over the parts with every assurance of success. Upon the cases used to demonstrate the value of the spray of adrenal, marked blanching and contraction of the mucosa and blood vessels occurred almost instantly, every part with which the solution came in contact undergoing this change; the effect upon acute inflammations being marked, as in a few seconds the membrane was anemic and every trace of inflammation had for the time being disappeared.

The following conclusions are suggested by my experience with this drug in the lower animals, and four hundred and fifty cases in hospital and private practice:

1. The aqueous extract of the suprarenal gland is the most powerful astringent and vaso-motor constrictor that we possess.

2. Its action is peripheral, is exerted directly on the vessel walls and basement membrane, and is limited only to the parts with which the drug comes in contact.

3. Is non-toxic, non-irritating, cannot produce a vicious habit, and may be repeatedly used on the same individual without losing its power.

4. It prevents to a marked extent the toxic effects of local anesthetics by retaining them in the tissues and preventing absorption.

5. The aqueous extract readily decomposes on account of the large amount of animal matter present, but the degree of putrefaction in no way impairs the physiological activity.

6. It first blanches and then contracts mucous tissues, and will subdue active or passive inflammation.

7. Its activity is not impaired by boiling and it may be repeatedly sterilized in this manner, while carbolic acid will preserve

the solutions indefinitely and in no way impair their value.

8. It will prevent primary, and greatly lessen danger of secondary, hemorrhage.

9. Its action is manifested in twenty seconds, attains its maximum in five minutes, and lasts from one and one-half to twenty-four hours.

10. It increases the tonicity of the parts, augments the action of other drugs, especially cocaine, and diminishes post-operative swelling.

11. Markedly restricts exuberant granulation tissue wherever situated.

12. Finally, diminishes secretion and aids in more rapid healing.

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[Prize Paper in literary contest of MERCK'S ARCHIVES]

## Hypnotic Action of Apomorphine Without Nausea

By CHARLES J. DOUGLAS, M.D.

Physician in charge of the Walter Baker Sanitarium, Boston, Mass.

**A**POMORPHINE acts as a prompt and well-nigh infallible hypnotic, if injected subcutaneously in doses of about one-thirtieth of a grain. A careful search through standard text-books, and a large correspondence on this subject with representative medical men have demonstrated to me that the profession is ignorant of this important fact.

Although one-thirtieth of a grain is about the average hypnotic dose, yet for some patients this is too large, as it produces nausea, while in others a larger amount will cause no disagreeable symptoms. The dose should be so adjusted as to be large enough to produce sleep, and small enough to avoid nausea. This being only about one-third of the ordinary emetic dose, it is, of course, perfectly harmless.

I believe the use of apomorphine for the purpose of producing sleep without vomiting is original with me. The last edition of Potter's "Handbook of Materia Medica,

Pharmacy and Therapeutics" (1899), contains on page 394 this sentence: "Apomorphine, though a derivative of morphine, is neither hypnotic nor narcotic in any degree."

Such a statement in so recent and authoritative a work as this shows that the remarkable hypnotic properties of this drug are not generally known to the medical profession.

When thus administered, apomorphine acts as a hypnotic with precision. Both in mild insomnia and in furious delirium I find that it produces sound sleep in from five to twenty-five minutes. On waking, the patient feels none of the unpleasant symptoms that usually follow sleep induced by drugs. The sleep of this remedy is refreshing and restful. As its action is so prompt, it is advisable usually to administer it when the patient is in bed, or quite ready for bed. If a delirious patient refuses to go to bed, this hypnotic will cause him to



voluntarily lie down in a few minutes, and sleep will follow. Its direct hypnotic action appears to last from one to two hours, but in many cases the patient will sleep all night, if promptly put to sleep by this remedy on going to bed. If more is needed in extreme cases to produce an eight-hour sleep, a small dose of some slower acting hypnotic will aid in keeping the patient asleep that length of time.

There is no possibility of a "drug habit" being formed, as it becomes a vigorous emetic if the dose be increased. There are no cumulative effects from this remedy, hence it may be given at frequent intervals without harm. These small hypnotic doses usually accelerate the heart's action slightly.

I discovered accidentally that apomorphine becomes inert if dissolved in a saturated solution of boracic acid. I made this mixture for the purpose of securing the antiseptic action of the latter drug, and found that I had completely neutralized the remedy, both as a hypnotic and an emetic. I have failed to find in medical literature any reference to the antagonism between these two drugs.

During the last four years I have given apomorphine in private and sanitarium practice to three hundred patients, I think, and during that time I have found two or three individuals on whom it had but slight hypnotic or emetic effect. One in a hundred is perhaps a fair estimate.

In such cases emesis cannot be produced usually, even when the largest doses are given.

Another idiosyncrasy that I have occasionally observed is a peculiar susceptibility to the emetic action of this drug.

CASE 1.—A man forty-five years of age. He had had no sleep of any consequence for over two weeks, and had used many kinds of narcotics without obtaining relief. The first night I saw him I administered hypodermically one-thirtieth of a grain of apomorphine at bed-time. In about twenty minutes he was asleep and slept till morning, greatly to his astonishment. After securing a few nights of refreshing sleep in this way, he was soon able to sleep without aid.

CASE 2.—Dr. F. had been under my care at the sanitarium for several weeks as a morphine patient. After the complete withdrawal of that

drug he became the victim of persistent insomnia, which no ordinary dose of the usual hypnotics would relieve. The injection of apomorphine never failed to put him to sleep in a few minutes without nausea. He reported that the sleep thus induced was always refreshing and seemed natural—quite unlike the sleep of other narcotics.

CASE 3.—An epileptic with violent and destructive mania following every attack. Neither morphine, bromide nor chloral would materially modify the delirium or produce sleep. I finally resorted to apomorphine, which invariably puts him to sleep in ten or fifteen minutes, the sleep lasting from one to four hours. On waking, he is always greatly improved and usually free from delirium.

CASE 4.—A strong mechanic forty-eight years of age. Delirium tremens in the fighting stage. I injected one-thirtieth of a grain of apomorphine, and he went to sleep in ten minutes without vomiting, and slept about an hour. When he awoke the delirium was gone.

The advantages of apomorphine as a hypnotic may be summarized somewhat as follows:

1. Safety.
2. Promptness—producing sleep in less than half an hour, and frequently in ten minutes.
3. Certainty of action in most cases, even in the wildest delirium.
4. Refreshing and natural character of the sleep.
5. No danger of habit.

In addition to its hypnotic action, it is also a cardiac stimulant, sudorific and antispasmodic. Further experiments may show that it is also antipyretic and analgesic. Dr. Tilton has called my attention to the interesting fact that when used as an emetic in croup it is followed by a decline in the fever. Possibly the small hypnotic dose will also produce this antipyretic effect in other fevers.

It is to be hoped that many physicians will at once begin the investigation of this remedy along the lines I have indicated, and that they will give their clinical experience to the profession through our medical journals. Such a course will demonstrate, I believe, that in apomorphine we have, unsuspectingly, been carrying about with us a drug possessing remarkable properties and a wide range of usefulness.

# Dionin in the Treatment of Coughs

By J. W. P. SMITHWICK, M.D., LaGrange, N. C.

**D**IONIN is a synthetic drug, the chemical name of which is ethyl-morphine hydrochlorate. It is a crystalline powder, freely soluble in water and alcohol, and may be given in doses of from  $\frac{1}{3}$  to 1 grn. I have used it in a number of cases for controlling cough with good results, and if administered in the prescribed dose every four to six hours have observed no unpleasant effects attending its use. In most cases I prefer it to morphine as nausea and head symptoms rarely follow its use. I have observed few instances where its employment did not benefit, relieving dyspnea and cough, and favorably influencing the expectoration. According to the views of observers, it seems to occupy a place midway between that of morphine and codeine. I have used it combined with other cough sedatives, and find that it acts well in combination, though a combination is not often necessary, as it is usually sufficient of itself. In its use I have seen none of the digestive disturbances which are so often observed after the administration of morphine. It has caused no constipation in any of the patients to whom I have given it, and it seems to be well borne in every particular.

Herewith I give a few clinical histories of patients treated with this drug:

A. C.—Had been troubled with a chronic bronchitis for a number of years, of which the cough was the most troublesome symptom. I had tried various remedies with but little benefit, and as the patient could not take morphine on account of the cerebral excitement it produced, I administered dionin in  $\frac{1}{3}$ -grn. doses with good results. The cough was very much lessened, so that the patient could secure a good night's rest, the customary coughing spells which occurred every morning were abated to a considerable extent, and the expectoration was expelled without unusual exertion. After three weeks' administration he was able to get on very well, and was troubled only with occasional coughing spells.

N. G.—Age 26. Was suffering from incipient phthisis. Cough was very annoying, especially at night, and the expectorated matter unusually tough and tenacious. I prescribed dionin in doses of  $\frac{1}{2}$  grn. every six hours, the last dose taken about an hour before retiring, with the result that

she was greatly relieved of this distressing symptom. After taking it two days she was able to sleep fairly well. The cough became easier and expectoration less difficult. By combining with this the appropriate tonic treatment her general health improved very much, she gained eleven pounds in three weeks, and I believe she is now on the road to recovery.

M. A. J.—This patient was suffering with a chronic bronchitis contracted during an attack of grip two years ago. Casts of the smaller bronchial tubes would often be coughed up. These casts were composed of a fibrinous exudation and epithelial cells from the lining membrane of the bronchial tubes. The paroxysms of coughing were more severe and protracted during the early hours of the day. I prescribed tonics to correct the asthenic condition of the system, and for the cough I used dionin in doses of  $\frac{1}{3}$  grn. six hours apart. The action of the dionin was good, and in a few days the cough was much improved, and at the end of two weeks had entirely disappeared.

J. A. W.—This person had a severe cough that remained as a sequel of an acute attack of bronchitis. When the weather was fine he got along fairly well, but when it became inclement he suffered very much. His appetite was poor. I placed him upon dionin in  $\frac{1}{3}$ -grn. doses every four to six hours, and gave the appropriate tonics to improve appetite and assimilation. Upon this treatment he improved rapidly, and in three weeks' time had about recovered.

M. S.—A little girl who had suffered an attack of whooping-cough during the early fall months. The winter coming on before she had entirely recovered, caused occasional spells of coughing which were very distressing. I gave the usual cough sedatives with little or no benefit. Tried morphine, but had to stop it on account of the nausea produced. I then used dionin in doses of  $\frac{1}{3}$  grn., to be administered every four hours while awake. It was put up in orange-flower water, and she did not object to it. At the end of the third day the coughing paroxysms were not so frequent or severe, and at the end of one week she was scarcely troubled at all, and a few more days of its administration finally relieved her.

J. A. C.—This young man had phthisis in its first stage. Cough was the most troublesome symptom. During some nights he would scarcely be able to sleep at all. It was dry and hacking in character, and the expectoration tough and tenacious. I gave him several cough mixtures, with no benefit. I then gave dionin in  $\frac{1}{2}$ -grn. doses. This gave some relief, and was continued for a week longer, when the relief was more apparent. He passed from my notice at that time, and I cannot tell the final results.

H. J.—Had taken a heavy cold, having been exposed to the cold damp weather a good deal. Had a harsh cough, which was very troublesome to him especially at night. Complained of soreness in muscles and chest everywhere. I prescribed dionin in  $\frac{1}{2}$ -grn. doses, to be taken just before retiring. The results were gratifying. He rested fairly well the first night after taking the dose. The second night he was not troubled at all, and it was only necessary to take the medicine for two more nights.

I have used this drug as a cough remedy in thirty cases that I have kept a record of. These cases may be classified as follows: Chronic bronchitis, 12; phthisis, 7; whooping-cough, 3; cough from various ill-defined causes, 8. The results obtained by the use

of dionin in their treatment may be given thus: Apparently cured, 16; benefited, 9; not benefited, 5.

I have never noticed or heard patients complain of any unpleasant effects from its use, which gives it a decided advantage over morphine in this respect. I have found it especially valuable in coughs occurring in children, where the administration of morphine is to be discountenanced. I have never observed an inclination to the formation of the drug habit, even when the administration was prolonged. I have on one or two occasions used it as a substitute for morphine in subduing pain, but found it inferior for that purpose.

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[Prize Paper in the literary contest of MERCK'S ARCHIVES]

## A Therapeutic Study of Iodine

By A. G. MINSHALL, M.D., Northampton, Mass.

### PART I.

THE halogen element iodine, though first isolated by Courtois in 1811, had undoubtedly been made use of in medicine from a very early period in the form of its natural combinations, which are widely disseminated throughout the three material kingdoms. For example, it is especially interesting in the light of recent researches on diseases of the thyroid gland, to find that the ancients used the ashes of sponge empirically, as a remedy in goitrous affections, and with undoubted success, which we must attribute to the fact that this substance, in common with the tissues of other marine organisms, is very rich in iodine.

The element is found in greatest amount in sea-water, but also in appreciable proportions in many inland springs, notably in Great Britain at the celebrated Woodhall spa, and also at Cheltenham; and in the United States in the Eureka spring of Saratoga and the iodine springs of West Virginia. The benefit derived by so-called "scrofulous" patients at these resorts must be largely attributed to the iodides of sodium, potassium, and magnesium contained in the drinking water, for there is no evi-

dence to show that any portion of these salts can be absorbed by the skin during the baths which are also part of the treatment. It has been stated that iodine does not exist uncombined in nature, but there is little doubt but that the air of the sea-coasts does contain a proportion of the vaporized element, especially in localities where the beach is apt to be covered at low tide with large quantities of sea-weed; this is notably the case at the well-known health resort Margate, on the southern coast of England, which is celebrated for the great benefit derived by the "scrofulous" during residence there, by their constant inhalation of the iodine-laden air. The beach at low tide presents about half a mile of chalk rocks thickly covered with the *Fucus vesiculosus* or "bladder wrack," a common dark-brown sea-weed which contains so much iodine that until lately nearly all our commercial supply was obtained from its ashes, known as "kelp." The newcomer to this resort can at once appreciate the presence of the element by the characteristic irritation of the respiratory mucous membrane to which its inhalation at first gives rise. We can personally tes-



tify to the extraordinary results obtained in many pretubercular and tubercular conditions by constant residence and open-air life in this atmosphere.

Besides sea-air and sea-water, the fauna and flora of the ocean hold iodine in their tissues, especially the mollusca, such as the "trepang" of Chinese medicine, and the oysters, clams, etc., of the western world, and their use as articles of food would seem to be indicated in the "scrofulous" diathesis. It is highly probable that cod-liver oil owes no small part of its good effect to the iodine which is contained therein. Until quite recently it was believed that the land animal contained no iodine in its tissues. The most interesting discovery by Baumann in 1896, however, has proved that the thyroid gland in both higher and lower animals normally contains an appreciable quantity, in the form of two complex albuminates known as iodothyrene and iodo-globulin. In the human adult the proportion of iodine in these compounds is about 10 per cent.; therefore the chain of evidence is complete that the element exists widely disseminated throughout all the material world.

We now have to consider the action of the element on the human organism, and we find at the commencement that the free element has a well-marked irritant effect on living protoplasm, although this property is less conspicuous when the iodine is liberated in a nascent condition and at once comes into contact with the tissues. We are enabled, in pharmacology, to regulate this action by combination of the element with other substances, obtaining thereby effects varying from the almost caustic one of the strong solutions to the gently stimulating qualities of the synthetic powers. As might be expected from this property, it is a powerful disinfectant and deodorant, the lowest forms of animal and vegetable life being destroyed by its contact, and organic odors neutralized. We can make practical application of these characteristics in several ways—as an antiseptic agent, applied to traumatic lesions, whether infected by microbes or not; as a powerful disinfectant, used in the vaporized condition to purify

the air, or in solutions to destroy vegetable parasites or sterilize the skin; as a counter-irritant or local stimulant to the epidermal or mucous membranes, applied in a vaporized form to the respiratory tract, or in strong solution or unguent to the cutaneous lining.

Iodine is freely absorbed from mucous surfaces, and very slightly from the skin, and in whatever compound it is presented, decomposition takes place on the surfaces by contact with the saline and albuminous fluids, leading first to a liberation of the nascent element, and then to fresh chemical action, productive of sodium iodide and certain iodo-albuminates. These diffusible compounds pass rapidly into the circulation, and there is little doubt but that the iodine is again set free in the blood and other tissues, although a sensible proportion of the combined salts passes unchanged through the system. The recent discovery of the normal presence of the element in the thyroid gland makes necessary a modification of the former conclusion that the whole of the iodine was excreted from the body. It is found that the administration of the drug leads to an increase in the quantity of the iodo-albuminates present there, proving that an appreciable quantity of the element introduced is retained in the organism for use in the complex physiological chemistry. This is, however, quite small in amount, and the greater part of the drug becomes rapidly disengaged from its loose combinations with the protoplasmic molecules, and is expelled from the system in all the excretions, chiefly in the form of the sodium salt; some proportion of this, however, being again decomposed in the sweat glands and other excretory organs, particularly in the tissues lining the respiratory tract.

In considering the action exercised by iodine on the various tissue elements through which it passes, we discover that small doses administered to a normal subject produce one most important effect, which is characterized by an acceleration of the normal tissue changes which are grouped under the term "metabolism." This so-called "alterative" effect is proba-

bly due to the rapid changes of chemical combination which take place between the element and the protoplasmic molecules, these chemical dynamics thereby exercising and stimulating the normal physiological functions of the tissue-cells. One might expect that these processes would give rise to an increase in the amount of urea excreted; this, however, does not take place to any extent, and an explanation is to be found in the probable fact that the cells of the liver tissue, which are the chief elaborators of this product, do not appear to share in the effect produced by the iodine. The blood appears to be unaffected by small doses of the drug, a tendency to coagulation being only noticed when such combinations as the iodide of potassium are administered, in which case the metal itself has a well-marked depressant effect upon the circulation.

In certain individuals having an unusual susceptibility to its action, and in the normal organism when excessive amounts are being introduced and excreted, we are apt to find certain untoward effects produced. Well-marked irritation of the alimentary canal with abdominal pains, sickness, and diarrhea; in the blood some of the red corpuscles are disintegrated, leading to blood-stained extravasations into the urine and various tissues; and finally the excretion of the drug is marked by the condition of "iodism" produced in the mucous lining of the respiratory tract, consisting of excessive congestion, with copious watery secretions and the usual symptoms of sub-acute inflammation in these parts—frontal pain, coryza, hoarseness, and discomfort in the chest. The skin may also be affected by the irritant effect of the out-going iodine, which is exerted when the element is set free in the sebaceous and sweat glands, leading to various papular or even pustular eruptions of acneform appearance; while rarely we see sub-cutaneous hemorrhages from the afore-mentioned disintegration of the red blood cells. These toxic symptoms have nothing to do with the purity or impurity of the drug. They are simply an exaggerated form of the effect of smaller doses, and will not occur

unless a quantity of iodine is introduced which is in excess of the amount required to produce a simple alterative effect, this proportion varying, however, in different individuals and in the same individual at different periods and conditions of health.

From a study of the changes effected by the passage of the element through the organism, we arrive at a definite indication for its internal administration. We may, therefore, confidently exhibit it in those conditions where the metabolic processes of the protoplasm are being sluggishly carried on, leading to an accumulation of some product which should be expelled, or to an increase in the number of cells, accompanied with a deficiency in the performance of their natural functions. The action of the drug in the removal of these conditions is well shown in the later stages of syphilis, where the indolent masses of small-cell growth are stimulated to go through their naturally rapid cycle of existence and premature atrophy, while at the same time the syphilitic poison is probably eliminated by the same process. Similar indications arise in the case of various products of chronic inflammation, and in those conditions where slow poisoning of the protoplasm is being effected from the accumulation of effete products of metabolism or of inorganic substances such as lead and mercury. The recent discovery that iodine is made use of by the normal chemical processes which continually are at work in the organism, makes it seem highly probable that the compounds of the element which are present in the system exercise this "alterative" action constantly, thereby promoting the removal of waste products in a way which may be compared roughly to the influence of "the boss" on a gang of laborers engaged in shovelling dirt away. May we not consider the action of this drug in cases of obesity as an example? In this condition, where we have an over-accumulation of watery and oily products, due to deficient functional activity on the part of the protoplasmic cells, we find that iodine, particularly in its organic form, has a distinct effect in reducing the excess of tissue. Further investigation

on this point is to be desired, as it is important to discover if the iodine products of the thyroid are wanting in subjects who are markedly affected by this abnormality; at any rate it is known that, in the condition of "myxedema," which is surely akin in nature to obesity, there is a total disappearance of the iodothyrene and iodo-globulin. Upon administration of these products the condition is remedied to a large extent, and the accumulation is removed by a renewed activity on the part of the formerly sluggish organs of metabolism. Apparently in this disease, our crude inorganic products of iodine are not delicate enough to produce the desired effect, and until synthetic chemistry can more successfully imitate the subtle processes of physiological chemistry, we must suppose that the disease has so altered the tissue elements that they are unable to form combinations with the free element.

[TO BE CONTINUED]

### The Later Effects of Opium

WITH the purpose of pointing out the danger attending the use of opium in the treatment of infantile disorders, Dr. T. D. Crouthers,<sup>1</sup> superintendent Walnut Lodge Hospital, Hartford, Conn., has made and collected a number of clinical observations of its later effects in adolescent and adult life in cases where it has been used in infancy. After commenting on the frequency of its employment by both parent and physician, evidenced on the one hand by the number of "soothing syrups" on the market, and on the other by the prescription files of the druggist, the author points out the fact that not enough notice of this danger is taken in textbooks and medical literature.

In adult life opium and its alkaloids are, he remarks, in a general way, excitants or depressants. Either one or the other is most prominent, and both always are in the same person. This is not dependent on the doses, although that is marked in many cases. One will have a long, early stage of stimulation and wakefulness, and then depression and sleep. The other will have

only slight exhilaration, and rapid marked sedation. In one case recovery from its narcotic action is followed by malaise and much physical discomfort; in the other, rest and a degree of satisfaction resembling that which follows natural sleep. The psychic effects vary. In one, most pleasing mental quietness and satisfaction follow; in the other, unusual buoyancy followed by total oblivion and discomfort and recovery. In the former, the mind falsely reasons that some new, exalted mental condition has been attained, most desirable for the future. In the latter, the discomfort from reaction calls for relief in the removal of the drug. Both classes soon have a reactionary period of discomfort and nerve disturbance. These are general states to which there are almost infinite exceptions and variations. While the sedation from opium falls most markedly on the sensory centers, and nerves of sensation, its localized action on the psychic and organic functions varies widely. In one case profound alterations of the functions appear, and rapidly extend to the mental operations. The organism, after a period of sharp irritation, apparent in nausea and deranged digestion, seems to take on a certain immunity and toleration, or the organism appropriates opium as it does food, and a demand for its continuous use becomes more and more imperative. This is the state of the habitués, and is the result of a long use of it, or appears in some cases at the beginning of its use.

Opium and its alkaloids seem to have two distinct effects on the nerve-centers and organism of infancy. Its sedative action is of the nature of palsy. Cell functions and growths are slowed up, retarded, and finally changed. The changes following long-continued doses become permanent. The symptoms of dulness and stupor continue in lessened vigor and degrees of imbecility and mental perversion in later life. The freedom from pain and forced sleep with apparent steadiness of nerve force react in increased irritation and instability, with greater sensitiveness to all surroundings.

Nearly all persons who have been injured in infancy and early childhood by these drugs manifest these two characteristics.

<sup>1</sup>*Jour. A. ner. Med. Assoc.*, XXXIV, No. 20.



Increased dulness and stupor, or nervous irritation and instability, often both, may be combined in one. Beyond these are disorders of the nervous system and digestion, with low power of control and subjection to morbid impulses that are largely uncontrollable. These various manifestations are better studied in the history of cases, the following of which are illustrations.

In a family of four children, whose parents were strong, healthy persons, living on a farm, one, a boy, was dull, passionate and of a low grade of intellect. He would overeat and drink to excess water, tea, coffee, or anything he fancied. He was stupid and obstinate, and at times, excessively sensitive and irritable. No one in the family resembled him in any way, but all were healthy and vigorous in mind and body. When one year old he had a convulsion and was given opium daily for over a year, then at long intervals. Finally, it was abandoned, and it has not been used since. The parents noticed that it was affecting him at the time, changing his mind and habits, and would not permit its use again. This was clearly an example of retarded brain growth with perversion of the functions, and later it will, no doubt, develop into some drug addiction or low form of dementia, disease and death. The history pointed to its use as the most prominent cause of this condition.

In a similarly healthy family, one son became an impulsive inebriate at eighteen years of age. The others in the same surroundings and conditions of living are very temperate. During the infancy of this boy he was given morphine for intestinal disturbances. At one time it was taken for nearly a year, by advice of the physician. He was stupid and dull much of the time this was taken, and its use was continued as a medicine for years, at long intervals, and in one or two doses a day. He began to use spirits to excess soon after puberty, and is now a periodic inebriate. The clinical study indicated a degree of mental and physical perversion and degeneration, dating from the use of morphine in infancy.

A case which came under observation was that of two children of a distinguished

missionary, one, a young woman, who at twenty-four years of age suddenly began to use opium and spirits to excess and showed much mental disturbance. During infancy she was nursed by a Hindoo woman, and was noted for her stupor and tendency to sleep. In early and later childhood she was extremely nervous and suffered from many hysterical affections. She was an accomplished teacher and a woman of strong character and ambition. Her brother, born two years later, was nursed by the same woman, and was noted for his somnolence and general stupor during this time. Later it was found that the nurse was an opium-taker, and that both children had undoubtedly been under the influence of opium from nursing. The boy grew up extremely nervous and irritable. At one time he drank beer to excess, then was a gambler. He was changeable and notional; became a clergyman, then a physician, and finally a speculator. He is now an opium-taker and neurasthenic, and an invalid, although not thirty years of age. Two other children of this family, one born before this Hindoo woman became nurse, and the other after she was discharged, are strong and healthy and free from any peculiarities of mind or body. The elimination of all other causes leaves opium the specific central factor in these cases.

In the author's studies of the heredity of all alcoholic and opium inebriety, about ten per cent. give some history of drugging in infancy. Narcotism from opium taken by accident has been followed by defects which finally culminated in drug or spirit-taking. A boy, two years old, ate a large number of opium and candy lozenges and was narcotized for two days, and with difficulty prevented from dying. He grew up an erratic, unstable, and feeble child. Digestion was impaired and sleep broken, and finally, at twenty-one, he became a spirit-taker and inebriate. Two brothers were healthy and strong.

Opium and its alkaloids, given to healthy children occasionally for some special purpose, are in all probability without injurious effect. In unhealthy, neurotic children, with defective ancestors, and evident imperfect de-

velopment, the increased degeneration which follows the use of opium is clearly from this source. Where this drug is combined with other remedies, and given a long time, the effects are the same. They cannot be lessened by the action of other drugs. No form of opium should be given to infants or children for more than a day at a time. While the effects of continuous sedation may be overcome by correct living, the cell injury and perversion of function is never repaired. The growth and development of other organs may do much to overcome, in part, and cover up the injury, but the defects will appear from the presence of the slightest exciting cause.

Five children of healthy parents became inebriates, both alcoholic and narcotic, when about twenty years of age. There was no heredity nor any special exciting causes. The home life and example were good, and both parents were total abstainers. Each one seemed to be nervous and feeble, and lacking in vigor, then without any reason began to use alcohol and opium freely, and finally were addicted to their constant use. It was found that from early infancy and through childhood they had been given laudanum and other forms of opium, for all sorts of ills. The mother had treated them without the aid of a doctor, and opium was used continuously for several months at a time. They all suffered from nutritional and digestive disorders, and were all nervous insomniacs and irritable and dull at times. This domestic treatment was, no doubt, the cause of the degeneration and neurosis in manhood. Three of these persons are decidedly feeble-minded. One is a talented musician, the other an actor of some ability. Two use spirits alone; two use alcohol and opium; one uses opium alone.

Another case reported was that of a very highly cultivated woman, who, at thirty-four, began to use morphine without any apparent cause in pain or sickness. She was a philanthropist and on the visiting board of a hospital where such cases were treated, and was acquainted with the dangers of the use of the drug. All the possible causes were eliminated in the study, and the

fact appeared that opium was used very freely in the first two years of her life. It was with difficulty removed and she was feeble and very nervous until after puberty, when she became strong. Her own statement was that she found such peace and comfort from its effects that she could not abstain from it.

Several persons using alcohol have given as a reason for this addiction the fear of becoming opium-inebriates. They had found opium so seductive and pleasing as to be irresistible; with alcohol they felt safe. Opium-taking in infancy is the common history of many cases, and is generally the domestic use of laudanum at first, for disorders of mind and body.

The presence of nervous dyspepsia, which begins soon after puberty and by early or middle manhood becomes a most distressing disease, is often traceable to the free use of opium in infancy and early life. Early and profound exhaustion from slight overwork or excitement seen in young persons, indicating low vitality and a feeble nervous organism, is the result of opium-taking in infancy. Early precocity or failure to sustain the expectations created have been noted in the cases of early addiction. The many constitutional defects and degeneracies which appear after puberty and in early manhood should always create an inquiry concerning the early therapeutics and drugs given in childhood. 'Where soothing syrups and prescriptions for sedative effects have been used a long time, the suspicion is strong that an opium diathesis has been created.

Opium degeneration, the author continues, may take on sexual and nutrient manias and leave the brain in a condition of weakness and instability. A "Christian Scientist" who has made some reputation by his delirious theories, was, according to a Boston physician, brought up on opium. His mother was a narcotic, and, to protect herself, gave her son opium freely in early life. He grew up undersized, and with a highly sensitive brain, full of delusive dreams and fantasies. This was another form of opium diathesis.

Another fact noted is that opium in in-

fancy acting on the most unstable organism, the brain cells and centers, not only retards but prevents healthy physiologic growth. In defective heredity this is permanent, although it may be concealed until later in life. This physiologic action of exaltation and depression, the latter being the principal stage, is manifestly toxic and injurious from the functional derangement which follows. Where no disturbance is recognized, the real danger is concealed. The cell growth and functions suffer, mechanically, nutritionally and psychically, by checking activity, diminishing nutrition and changing direction and purpose of action. This is true of opium in all cases. Sometimes one effect is more prominent than others. In DeQuincy the psychic action was prominent. In some cases the anemia shows the disturbance of nutrition, and in others the depression and suppression of organic activity is apparent.

Still another fact to be remembered is the concealed danger from opium-drugging in infancy. If only neurosis is present, if defects of growth and function exist, opium will of necessity increase this condition. Anemia, exhaustion and perversion of organic activity follow. If some temporary state is present, opium, by covering up the pain-signal, is not curative, but may be destructive in many ways not easily recognized until later in life. No one can tell whether this danger begins\* with the first dose or only after a succession of doses.

The author concludes with the admonition to mothers who use soothing syrups, and to physicians who freely prescribe opium, that they are responsible in many cases for the wrecks in later life, and says he has many cases under his care that are striking illustrations of this evil.

**Chronic villous arthritis** is benefited by the administration of guaiacol or thiocol, in connection with operative or hydrotherapeutic measures.<sup>1</sup> It would be futile to rely on these remedies alone, but after previous treatment by injection or operation, they appear not alone to contribute to the improvement in the general condition, but to confer a certain amount of protection against recurrence.

## The Use and Abuse of Phosphorus

IN a recent paper on phosphorus L. Harrison Mettler,<sup>1</sup> A.M., M.D., professor of physiology of the nervous system in the Illinois University Medical College, Chicago, writes that with a proper selection of cases no drug is more generally useful to the neurologist; that it is both a powerful and a subtle remedy, and, like a two-edged sword, can cut both ways—a fact which may account for the extremes of praise and condemnation which it has received. A careful study of the effects of phosphorus and its compounds will enable the practitioner to avoid its untoward effects and avail himself of its beneficial action.

After enumerating the various preparations of the drug, he urges that two things should always be kept in mind, namely, that it is a most active medicament, and that its overdose or prolonged administration tends to the production of fatty degeneration. Phosphorus is preëminently a stimulant to the processes of constructive metamorphosis and exerts this effect upon all the tissues of the body. The restorative power which makes phosphorus so valuable a weapon in the conflict with wasting diseases is the very same power that makes it so dangerous, and in physiologic conditions of the organism, stimulation of metabolism may easily slip beyond the line of desirability and pass over into overstimulation, excessive metabolism, and finally into fatty degeneration.

Everybody knows, he continues, how phosphorus stimulates the growth of the osseous tissues: and how, under its exhibition the spongy part of the bone is thickened and the compact substance grows more dense. Wegner has shown that in animals fed on phosphorus the medullary cavity of the long bones may become completely occluded by the excessive growth and deposit of bony material.

As phosphorus appears so important a constituent in the osseous and nervous tissues, it is thought by some that it thus supplies a kind of nutriment to those structures. With this opinion the author is not able to agree. The phosphorus of these tissues is,

<sup>1</sup>*Jour. Amer. Med. Ass'n*, XXXIV, p. 879.

<sup>1</sup>*Med. Review*, XLI, No. 19.



he believes, obtained from the food even when phosphorus itself is being administered, and the medicament is simply a most powerful metabolic stimulant, affecting all of the cells of the body alike; but as some cells, notably those of the nervous apparatus, are by reason of their high organization especially susceptible to stimulation, and by reason of their extraordinary functional activity are in need of rapid metabolic changes, phosphorus exhibits what appears to be an almost selective action upon these cells. Hence in the administration of so vigorous a reconstructive it is imperative that the nutritive material as food should be at the same time increased in alimentary richness. The appearance of the blood and all the other tissues of the body, in cases of phosphorus poisoning, reveal the extraordinary power of phosphorus in stimulating, and by overstimulation exhaustion of the metabolic properties of the cells. Singularly in such cases the intellect often remains unimpaired when the blood is so badly damaged as to cause a hemorrhagic diathesis, with uncontrollable bleeding from the most insignificant wounds.

That there is an increased assimilation of phosphorus in cerebral activity, the author says, was demonstrated by Alexander Chtchbrak,<sup>1</sup> who examined the phosphorus assimilation in (a) regard to the influence exercised by healthy brains; (b) that exercised by slow or comparatively non-active brains, such as those of imbeciles and idiots; and (c) that exercised by brains of animals under the action of morphine. He accepts the results of these experiments, namely, that excessive cerebral action—that is, intellectual overwork—produces, other things being equal, an increase of phosphorus waste; that these effects are not observed as the result of physical overwork, nor as that of a moderate mental activity; and that in microcephalous subjects the quantity of phosphorus assimilated is quite small, fixed, and is not modified by the amount introduced with the food. Normal cerebral activity is associated with phosphorus assimilation, whether the phosphorus be taken in the food or as a medicament.

In normal conditions the phosphorus found in venous is less than that found in arterial blood, the difference varying from 0.08 to 0.09 per 1000. In natural sleep the proportion is 0.110 per 1000; in narcotic sleep 0.086 per 1000. He also quotes Chtchbrak's final conclusions that: (1) The modifications in the assimilation of phosphorus can only occur in the two extreme conditions—on the one hand, under the influence exercised by increased continuous intellectual work; on the other, the lessened mental activity of idiotic brains. (2) Moderate intellectual work, or feeble work, as in the case of weak, imbecile brains, does not modify the assimilation of phosphorus. All of which establishes the importance of the rôle played by phosphorus and its compounds in normal cerebral activity.

Remembering then the three-fold physiologic action of this remedy, namely as a reconstructive stimulant to all the tissues and as a special stimulant and nutritive to the osseous and nervous tissues, the indications for its use in the combating of disease will be sufficiently obvious. In connection with this the practitioner must also constantly remember not to administer it in too large doses or for too prolonged periods of time. He is in the habit of employing the minimum rather than the maximum doses and to cease its administration for a few days at the end of every ten days or two weeks.

In the therapeutic uses of phosphorus he has found the phosphorus itself as prepared in the form of elixir, oil, or pill the most satisfactory for the direct stimulation of the nervous system. Zinc phosphide has been less effective in his hands. For more general tonic effects he prefers the hypophosphites and the glycerinophosphates. The latter are especially commendable. For gastric and hepatic troubles the acid salts are to be employed. Sodium phosphate, for instance, is almost specific in its action upon the liver, and in that large class of mild neuroses dependent upon hepatic insufficiency and consequent retention of bile constituents, he avails himself almost always first of sodium phosphate.

In certain forms of insomnia, due to cerebral exhaustion, small doses of phosphorus

<sup>1</sup>*S' jous' Annual*, 1803, V, p. 41.

have been useful in his hands. These forms of insomnia are generally the result of over-taxing an anemic and badly nourished brain. They are very difficult at times to relieve, as the brain cells absolutely refuse, in spite of the abundance of alimentations, to sufficiently reconstruct their own protoplasm so as to perform their neural functions normally. He finds the glycerinophosphate of iron especially useful here to both stimulate the metabolic functions of the cerebral cells and to enrich the blood out of which the stimulated cells imbibe their nutrition. In this way, and not as a hypnotic in any true sense, does phosphorus assist in overcoming insomnia.

In neuralgia, whether idiopathic or symptomatic, he has not found it very efficacious. Some headaches and hemicranias when associated with nerve tire and malnutrition are greatly benefited by a course of phosphorus and electricity.

Next to insomnia functional impotence furnishes the most favorable field for the employment of phosphorus. The inability to hold sexual congress is often due to psychological causes. It is also due to causes located in the genital nervous apparatus that are not organic in character. No remedy is more powerful than phosphorus in awakening the dormant activities of both the voluntary and involuntary fact of erection.

In the earlier stages of locomotor ataxia, it has seemed to him that very small doses of phosphorus have proved advantageous. This disease is pre-eminently of the degenerative type. The phosphorus exercises no specific effect upon the disease process, but it probably keeps alive the metabolic powers still remaining in the failing neurons and so checks the downward course of the disease.

He refers to the use of phosphorus in osteomalacia and rickets, and says its trophic effects in these bone diseases are not to be doubted.

He also urges a more extensive, with at the same time a more guarded use of this valuable remedy in all of those neuroses and nervous troubles in which malnutrition, metabolic insufficiency, and protoplasmic failure are chiefly to blame, and in conclu-

sion he declares that the materia medica contains no more useful stimulant than phosphorus in cellular and protoplasmic metabolism, especially of the nervous system.

### Incompatibility

INCOMPATIBILITY in prescriptions is defined by E. A. Ruddiman,<sup>1</sup> Ph.M., M.D., as the result which follows the bringing together of substances which react chemically, do not make clear mixtures pharmaceutically, or are physiologically antagonistic. It is the interference of one ingredient of the prescription with another.

The subject of incompatibility is a broad and almost endless one. It grows every time a new remedy is introduced into the materia medica. This is particularly true in the case of many complex synthetic compounds which have been and are being brought forward in ever increasing numbers.

The branches of science which the study of this subject concerns are botany, materia medica, therapeutics, pharmacy, physics, and chemistry. A knowledge of all of these is necessary to overcome or avoid incompatibility, consequently this naturally comes at the latter part of the student's course of study when these other subjects have been mastered. If two of these branches can be said to be of more importance than the others, he would place chemistry and a knowledge of the physical properties of drugs at the head of the list.

That the study of incompatibility is an important one will not be denied by any one. When the possibility of a reaction resulting in the formation of a poisonous compound which might cause the death of a human being is realized, the importance is forced upon us with a double emphasis.

There would be a great reduction of incompatibilities if physicians would remember the following rules:

1. That when two or more substances are brought together in solution, a precipitation will take place if by any rearrangement of the parts there can be formed an insoluble compound.

<sup>1</sup>*Southern Med. Jour.*, III, No. 4.

2. That it is better to use as few agents as possible, provided they will produce the desired effect.

3. That a drug should not be prescribed with its tests or antidotes.

4. That the simplest solvent or vehicle is the best.

For the sake of convenience it is generally customary to divide incompatibility into three classes—physiological, pharmaceutical, and chemical, all three of which, however, may occur in the same prescription.

Physiological or therapeutical incompatibility occurs where two or more substances having more or less opposite action are brought together. This kind of incompatibility does not concern the pharmacist as much as the physician; not unfrequently the prescriber intentionally directs the combination of such drugs. The tendency in such combinations is rather to lessen than increase the action of the main drug, so that it is rarely that the pharmacist has occasion to decline to fill a prescription on this ground. In many instances of physiological antagonism the agents are not directly opposed to each other, or, if so, one is given in a smaller amount so as to modify only a part of the action of the main drug. For instance, a small dose of atropine is sometimes given with morphine to counteract the tendency of morphine to cause constipation, indigestion, and cardiac depression. In this way the physician uses one drug as a corrective for another. If the doses are within the usual limits, the pharmacist has but little occasion to question the motive of the physician.

Aconite slows the heart, lessens the arterial tension, slows respiration, lowers temperature. Digitalis strengthens the heart and raises the blood pressure, but it is too slow to use as antidote for aconite poisoning. Amyl nitrite, atropine, caffeine, ether, morphine, sparteine, and strychnine are stimulants under certain conditions, and are able to counteract to a greater or lesser degree the effect of aconite.

Atropine increases the rapidity of circulation and respiration, raises arterial pressure, increases temperature, dilates the pupils of the eyes, stimulates the cerebrum to delirium

and checks nearly all secretions. In these actions morphine is antagonistic. Physostigmine is opposed to atropine in its action on the respiratory movements, the heart, the pupil, and the secretory organs. Pilocarpine is antagonistic in its action on secretions, heart, arterial tension, temperature, and pupil. Muscarine is an almost exact antagonist. Quinine (in large doses), chloral hydrate and aconite are somewhat opposed to atropine in its action on the cardiac, respiratory, and heat-producing systems.

Chloral hydrate (in large doses) depresses circulation and respiration, reduces blood pressure, lowers temperature, and suspends cerebral functions. Picrotoxin seems to be antagonistic only in its action on the cerebrum. Caffeine is opposed to chloral in its tendency to stimulate the heart and cerebrum and to the blood pressure. Physostigmine raises the blood pressure. Digitalis is antagonistic in that it strengthens the force of the heart and raises the blood pressure. Strychnine stimulates respiration and circulation and raises the blood pressure, but is not as efficient an antidote for chloral poisoning as chloral is for strychnine poisoning. Codeine, thebaine, and brucine are antagonistic in some respects.

Chloroform in its effect on the heart is antagonized to some extent by alcohol, amyl nitrite, ammonia, atropine, and strychnine.

Digitalis slows the heart and raises the blood pressure. Chloral hydrate, muscarine, scoparin, saponin, and strychnine are somewhat incompatible physiologically with digitalis.

Cocaine stimulates the cerebral functions, dilates the pupil, and in large doses depresses circulation and respiration. Morphine and chloral hydrate antagonize the cerebral effects. Amyl nitrite, caffeine, digitalis, and alcohol counteract its depressing effect. Physostigmine and pilocarpine act oppositely to cocaine when applied to the eye.

Morphine slows the circulation and respiration, depresses arterial tension, diminishes cerebral functions, and contracts the pupil. Caffeine, cocaine, amyl nitrite, and strychnine have an opposite effect on respiration and circulation. Capsicum partially



antagonizes the cerebral effects. Digitalis, chloroform, quinine, tartar emetic, and veratrum viride have some antagonistic action.

Strychnine stimulates the heart, increases the blood pressure, quickens and deepens the respiration, and increases the excitability of the spinal cord. Aconite and curare antagonize the cardiac, respiratory, and spinal stimulation of strychnine. Amyl nitrite, chloroform, butyl-chloral hydrate, morphine, potassium bromide, paraldehyde, physostigmine, gelsemium, and urethane are opposed to the reflex nervous stimulation. Nicotine, valerian, and veratrum viride are placed among the antagonists.

Pharmaceutical incompatibility, the author goes on to say, is that in which the physical properties of the substances are of such nature that the substances cannot be brought together without causing a precipitation of solid matter, a separation of liquids, a liquefaction, or solidification, or other change of physical properties. It usually arises from mixing two or more solutions, the mixture resulting in the separation of one or more substances which were previously in solution. As no new products are formed, it is only in comparatively few instances that such incompatibilities make dangerous mixtures. Frequently the trouble can be avoided by giving attention to the order of mixing, as in the following prescription:

Tincture Iron Chloride.....	2 dr.
Spirit Nitrous Ether.....	4 dr.
Mucilage Acacia.....	1 oz.
Syrup.....	to make 3 oz.

The tincture of iron precipitates and coagulates the acacia if added directly to the mucilage, and the precipitate does not readily dissolve after the syrup is added. By adding part of the syrup to the tincture, and part to the spirit, and mixing these with the mucilage, a clear liquid will result.

In some instances the trouble is due to a change in solvents, hence a knowledge of solubilities is very essential. Even when the choice or changing of a solvent is beyond the control of the pharmacist, he can frequently prevent the trouble by first diluting largely the opposing solutions. Where this fails to produce the desired result, he

has recourse to the use of some gummy substance or viscid agent for the purpose of suspending the separated substance, if it be an active ingredient, or to filtration if it be inert matter.

After giving some of the more important substances the author defines chemical incompatibility as a breaking up of compounds with the formation of new ones. In many instances it is impossible to avoid or overcome chemical reactions. There is more liability of dangerous mixtures resulting from this class of incompatibilities than from any other.

In a few instances the prescriber knows and desires the formation of a new compound, as for instance, in the giving of potassium iodide in combination with mercuric chloride, or sodium bicarbonate with salicylic acid, but more frequently the incompatibility creeps in through his ignorance. Generally the reaction is evidenced by the formation of a precipitate, the liberation of a gas, or a change in color, but not necessarily so. Because chemical change takes place in a prescription, it does not follow that the prescription should not be filled. Many times the only inconvenience produced is the necessity of making a shake mixture. Where the substance liberated (as iodine from a mixture of potassium iodide and ferric chloride) or thrown out of solution (as strychnine from a mixture of strychnine sulphate and mercuric chloride) is a poisonous one, the pharmacist must be extremely careful about filling such a mixture, even with a shake label. Moreover, it must always be borne in mind that the reaction that causes the danger may not take place at once, perhaps not until the prescription is in the hands of the patient. For instance, under certain conditions an aqueous solution of strychnine sulphate and potassium iodide may precipitate after remaining clear for a day or more.

The author then gives a number of the more common chemical incompatibilities, and says that the complete list is long; in fact, has never been made out and never will be until the addition of new remedies to the materia medica has ceased.

He urges that those studying this subject look carefully at prescriptions and note

the incompatibilities which occur. Take the first ingredient occurring in the prescription and see if it is compatible with the second and then with the third, and so on with the balance of the ingredients. Then take the second ingredient and compare it with the third and the fourth, and so on through the prescription. By doing so about all of the possible incompatibilities will be noticed. When this is done, determine whether by mixing the ingredients in a certain order any of the difficulties may be overcome. Where opportunity is afforded fill the prescription in different ways and see if it gives the appearance that is expected.

## The Treatment of Heart Disease

IN the fourth of a series of papers on the treatment of diseases of the heart, Albert Abrams,<sup>1</sup> A.M., M.D., of San Francisco, discusses the general management of cases, as to prevention, treatment during compensation and during broken compensation, and individual symptoms. Under prevention he urges careful management of rheumatic cases, and quotes Chambers to the effect that during an attack of rheumatism, cardiac complications develop less often when patients sleep in blankets and not between sheets. Sheets become wet with the acid perspiration and conduce to relapses from chilling of the skin.

The alkaline treatment is the best for preventing and arresting cardiac complications. This may be combined with the salicylates. In gouty patients, in alcoholics, and tobacco users appropriate measures must be taken.

Tobacco, like alcohol, must be interdicted in those who show a tendency to cardiac disease. Tobacco augments the cardiac contractions and induces intermittences and irregularities (arrhythmia) of the heart. In the etiology of spurious angina pectoris, nicotine poisoning is paramount. An effective argument to induce tobacco habits to discontinue their habit is to instruct them to count the pulse before and after smoking, when they will invariably note an increase of from 4 to 11 beats a minute. Coffee and tea are not without influence in the etiology

of affections of the heart, notably functional disturbances.

During the stage of compensation the author holds that the province of the physician is strictly limited to maintaining the vigor of the heart muscle; his efforts must be directed toward inviting hypertrophy, and when this is present, toward its maintenance. During broken compensation, rest, fresh air, careful dieting, and cardiac tonics are advised. Among these latter digitalis is the acknowledged chief. Osler voices the opinion of careful observers when he expresses the belief that there are no substitutes for digitalis.

The table on the opposite page gives a synopsis of the uses of the leading cardiac tonics.

The Schott methods by saline baths and resisted movements, lung gymnastics and home exercise have their use in certain cases.

For palpitation the ice bag over the heart, potassium bromide in 30-grn. doses, and aconite are recommended. Dropsy is combated with the following combination:

Infusion Digitalis.....8 oz.

Diuretin.....4 dr.

A tablespoonful three times a day for an adult.

A combination of strychnine, digitalis, sparteine, squill, and caffeine will often augment diuresis. Another excellent combination is the following:

Potassium Acetate.....8 dr.

Infusion Digitalis.....8 oz.

A tablespoonful three times a day for an adult.

Trousseau's diuretic wine is often useful:

Bruised Juniper Berries.....10 dr.

Powdered Digitalis.....2 dr.

Powdered Squill.....1 dr.

Sherry Wine.....1 pint.

Macerate for four days and add

Potassium Acetate.....3 dr.

Press and filter.

A tablespoonful three times a day for an adult.

In addition, calomel, milk, purgatives (Rochelle or Epsom salt or compound jalap powder), and sudorifics are often beneficial.

Cough, hemoptysis, nervous symptoms, and gastric complications have each their special indications.

In renal complications, the author concludes, diet is of prime importance. Foods

<sup>1</sup>*Medical Standard*, XXIII, p. 330.

must be selected which are capable of easy digestion, and which are least liable to produce intestinal poisons and thus conduce to auto-intoxication. Arterial tension being

cause of high arterial tension, and the appropriate treatment must be directed toward the formation of uric acid and its excretion from the economy.

	DIGITALIS	STROPHANTHUS	CAFFEINE	STRYCHNINE	NITROGLYCERIN
Physiol. action	Stimulation of heart muscle and inhibitory apparatus; contraction of arterioles. Slows heart and increases force of its contractions	Similar to digitalis, but does not contract arterioles. Less rapid than digitalis in action and less certain and powerful.	Increases power and regulates rhythm of heart, but without specific action on inhibitory nerves. Acts through nervous system.	Stimulation of motor and inhibitory apparatus of the heart with rise of arterial tension.	Vascular dilatation, lowering blood pressure. Increases heart action by removing influence of inhibitory apparatus.
Toxic symptoms	Nausea and vomiting, slow, irregular pulse, syncope, confusion of vision, insomnia, delirium. Blue color of sclerotic considered diagnostic. (Tardien.)	Not cumulative in action like digitalis and more easily tolerated by the stomach.	In too large doses over-excites the nervous and circulatory systems, inducing insomnia and even mania.	Dilated pupils, spasmodic respiration, limbs jerk, stiff lower jaw and exaltation of all the reflexes.	Intense frontal headache, beating carotids and rapid and irregular action of the heart.
Indications for use	Failure of compensation irrespective of the nature of valvular lesion.	Same as digitalis. May act when the latter fails. May be useful in aortic incompetency and arterio-sclerosis.	When rapid cardiac stimulation is necessary, and as an adjuvant to other tonics when diuresis is necessary.	Powerful adjunct to digitalis; especially valuable in failure of right heart. Reliable in sudden heart failure.	In painful angina and syncope occurring in aortic lesions.
Contra-indications	When compensation established. Theoretically, its use is interdicted in aortic incompetency and arterio-sclerosis.	None.	In irregular heart and when digitalis and strophanthus have not previously been tried.	Feeble in action when given per os.	In arterio-sclerosis and irregularity of the heart.
Most efficient preparation and dose	Infusion in $\frac{1}{2}$ oz. and tincture in min. doses 3 or 4 times a day, until symptoms are relieved; then replaced by strophanthus.	Tincture, 5 to 10 min. 3 or 4 times a day.	Caffeine, Benz. Soda, each, 1 dr.; Dis. Water, 5 oz.; Licorice, $\frac{7}{8}$ dr. $\frac{1}{2}$ to 1 tablespoonful 3 to 6 times a day.	Tr. Nux Vom. 5 to 10 min.; Strychnine Sulph. hypodermically $\frac{1}{30}$ to $\frac{1}{15}$ grn.	One min. of the one per cent. solution every hour until physiologic effects occur.

high in these cases, nitrogenous food and fermented liquors should not be used. Predigested milk is the ideal food, relieved by kumyss. A vegetable diet, excluding fibrous vegetables, such as turnips, beets, etc., and beans and asparagus, combined with fresh fruits, serves well.

When digitalis is used, it should always be administered in conjunction with nitroglycerin.

The uric acid diathesis must be remembered as an extremely common

**The Pilocarpine Habit** is noted in a curious case<sup>1</sup> of an individual who some years ago began the use of morphine, to which he later added cocaine, and finally also pilocarpine. It was his habit to take an injection of pilocarpine, which was followed half an hour later by an injection of two grains of morphine, and in another half hour by a grain of cocaine. The victim is said to be both a physical and mental wreck.

<sup>1</sup>The Quar. Jour. of Inebr., XXII, p. 149.



# PROGRESS IN MATERIA MEDICA

**Salines** and their value as eliminative laxative agents, and the manner in which they have replaced older methods of disposing of the waste products of the system, such as blood letting and drastic cathartics, are discussed in an interesting way in an editorial by Dr. J. C. Culbertson.<sup>1</sup> He puts magnesium sulphate at the head of the list and is disposed to believe that most of the large number of mineral waters now on the market owe their efficacy wholly or in part to this useful salt as a reliever of the various indispositions occurring in the spring. He thinks the magnesium preparations have no equal, for, without danger of ptialism, they not only excite to action all mucous and serous membranes, but effectively influence the glandular system and perceptibly lower elevated temperatures.

The salines, he continues, are not nostrums or cure-alls, but are useful adjuncts to many other remedies, adding greatly to their efficacy. They should be taken from the list of ordinary domestic remedies, and when indicated physicians should prescribe them by their technical names. The psychic influence of a physician's prescription should always be retained, which cannot be done by telling a patient to purchase an ounce of Epsom salt and take teaspoonful doses as directed. To be sure, the salt will work, but it also works against the interest of the prescriber.

There ought to be as great care and caution exercised in writing for or in dispensing the salines as in the case of any other pharmaceuticals. There should be a remembering of the fact that it is not so much the prescription itself that is called for as it is the concurrent professional advice of the occasion. The doctor who advises a patient to go and get an ounce of salts and take as he directs, absolutely lowers himself professionally in the eyes of his patient, no matter how valuable his other directions may be.

The doctor deplores the prevailing tendency toward self medication, and holds that, while there is no objection whatever to the teaching of hygienic lessons to the people, and while it is true that they cannot know too much of the laws pertaining to the preservation of health, yet when the pathological conditions of ill-health manifest themselves the services of a physician should ordinarily be sought and his advice followed.

**Brucine** is the subject of editorial comment in a contemporary<sup>1</sup> in which it is declared to be an excellent tonic, especially adapted to the needs of childhood and valuable in the paralysis of infancy after the acute stage has passed. In a case of spinal paralysis in a boy five years old coming on after the heated term of August last, it was given steadily for seven months, except the first four weeks, with the result that the hemiplegia has entirely disappeared. In the pneumonia of children it is said to be equal, if not superior, to any salt of strychnine, its sustaining powers being marvelous; and the question is asked, why may it not be used to equal advantage in epidemics of whooping-cough, to forestall the ever-present tendency toward exhaustion? The writer goes on to suggest its use in weakness of the respiratory muscles in many cases of pneumonia of the adult; in the debilitating maladies incident to summer, such as summer complaint and cholera infantum, to prevent collapse; for the weakness of typhoid and malarial contingent fever as a sure support and uplift; for winter cough in old people, and in fact in all or nearly all, paretic conditions.

**Pane's Antipneumonic Serum** has been used by Dr. Antonio Fanoni<sup>2</sup> in eighteen cases of pneumonia with but one death of a patient seen first on the ninth day and in the pre-agonal state of the disease. In this case the injection of 40 Cc. was followed by a marked improvement of the general condition and the impending death was delayed two days. Four of Dr. Fanoni's patients were children under three years of age, and all recovered in a few days. The doctor injects 40 Cc. of the serum daily, by which means he obtains a rapid lowering of the temperature and amelioration of all other symptoms.

**Atropine** in the *plague* was the subject of a paper read before the Bombay Medical and Physical Society by Dr. R. Row.<sup>3</sup> Of 97 patients to whom he administered this remedy 44 recovered. Of the 53 deaths, 15 occurred within twelve hours of admission to the hospital. Suppuration occurred in only 14 per cent. of the cases, while other cases not treated with atropine showed as

<sup>1</sup>*Med. Summary*, XXII, No. 3.

<sup>2</sup>*Pediatrics*, IX, p. 393.

<sup>3</sup>*Lancet*, I, 1900, p. 1445.

<sup>1</sup>*Cincinnati Lancet-Clinic*, XLIV, No. 15.

high as 84 per cent. of suppurations. The bubo, under the influence of atropine, "either subsided completely or remained as a hard nodule, which in some cases when cut into showed a mass of slough with hardly any pus." Some cases, generally those associated with hematemesis, seemed to be little influenced by atropine, no matter how early the treatment was begun.

**Strychnine** used locally in the treatment of *asthma* is advocated by Dr. Richard B. Faulkner,<sup>1</sup> of Pittsburg, Pa., for the reasons, as stated by him, that it increases arterial tension, promotes capillary circulation and relieves capillary congestion. It counteracts the parietic state of the local blood vessels in chronic inflammation, it imparts to the spirits remarkable buoyancy, adds tone to the muscular fibers of the bronchi and relieves the spasm; and, finally, it is rapidly absorbed from the mucous membrane and powerfully assists other measures in asthma. Intra-laryngo-tracheo-bronchial injections of  $\frac{1}{30}$  to  $\frac{1}{20}$  grn. *pro re nata* are advised not oftener than twice in twenty-four hours.

**Picric Acid** having well-known keratoplastic properties, Dr. E. Hawthorn,<sup>2</sup> intern for Dr. Michel of the Marseilles Hospital, conceived the idea of using it on *phagadenic chancres*. The results from his first attempts were so encouraging that he tried it next on all chancres, both hard and soft, until twelve cases were treated in that way with uniformly good results. The method recommended by him consists in first washing the surface to be treated with a camphorated solution of carbolic acid, and then applying the moist dressing of saturated solution of picric acid. The dressing is to be kept from the healthy skin, lest it start an eczematous or erythematous eruption.

After four or five days cicatrization would commence and healing would result in a month at most.

**Piperazine** is warmly recommended in *gout* by Dr. Wm. Fearnley,<sup>3</sup> of Harrogate, Eng. He had a patient who was subject to yearly attacks whom he advised to take piperazine and who, to the time of his death some years later, never had another attack of acute gout. Another instance is that of a man—a most active and tireless gentleman well over sixty years of age, who owes his vigor and health to his habit of taking piperazine. Three years ago he was an in-

valid, with a man in attendance upon him during the entire night, relieving his wife and daughter, who took day duty. About ten months ago the author was called to see him and found him in bed with gout in both feet. He quickly acknowledged that it was his own fault—that he had been busy and had neglected his piperazine.

Harrogate, the doctor concludes, is justly famous as a resort for the gouty: its famous sulphur baths are unequalled, and with the baths and the daily unloading of the colon by the sulphur water, very few cases fail to obtain relief during an ordinary visit.

In the worst cases, however, where the health is badly broken, or where the patient can only stay a week or ten days, the addition of piperazine to the treatment is invaluable.

**Sodium Salicylate** was highly commended in the treatment of rheumatic cases by Dr. A. E. Sansom<sup>1</sup> in the recent debates on rheumatism at the Chelsea, England, Clinical Society. He said that if this treatment fails to prevent the manifestation of rheumatic disease of the pericardium and the heart it is at any rate proved by a mass of convincing testimony that it promptly takes from acute rheumatism its painful terrors, ministers to comfort, and thus brings about that systemic calm which is of the first importance in obtaining a good result in cases of heart disease. The routine plan which he adopts in the case of an adult is to administer the pure sodium salicylate in 20-grn. doses, with 5-grn. doses of ammonium carbonate, or 20-min. doses of aromatic spirit of ammonia in an ounce of camphor water every two hours until six doses have been taken, or until temperature has fallen and pain has ceased; subsequently the administrations are reduced to every six hours or every eight hours. It has been said that sodium salicylate is incompatible with free ammonia, ammonium carbonate, or aromatic spirit of ammonia, but he had investigated this point and found that the mixtures of these substances show no decompositions and are perfectly well taken by the patients throughout the whole period of treatment. He had combined the alkaline carbonates, especially sodium carbonate in 20-grn. doses, with the mixture in some cases, but had not observed that this is in the early stages of treatment of any distinct advantage. Any recurring wave or storm of the disease is treated as the early symptoms and treatment is kept up for from three to six weeks. He very rarely observed signs of

<sup>1</sup>*Phila. Me. Jour.*, V, p. 1250.

<sup>2</sup>*La Sem. méd.*, 1000, No. 13.

<sup>3</sup>*N. Y. Lancet*, XXI, No. 3.

<sup>1</sup>*The Lancet*, No. 3097, p. 925.

intolerance of the drug, but in a small minority of cases employed sodium dithio-salicylate in 3-grm. doses every eight hours in a cachet or in chloroform water with extract of liquorice. It is very rarely, however, that the sodium salicylate acts in any way other than beneficially, and the toxic symptoms are sometimes wrongly ascribed to the drug when they are really due to the disease for which the drug is administered. In all cases of acute rheumatism in which the features are a rise of temperature and painful involvement of the joints, he is convinced that the treatment by the salicylates is the best that can be adopted. With this there must be combined the policy of perfect rest in bed.

**Carbolic Acid** is responsible for a considerable number of "accidents" now that its use has become general in the household. Peculiar interest is attached to a case related by Dr. C. H. L. Johnston,<sup>1</sup> of St. John, N. B., of an inebriate who, being on one of his periodical outbreaks, returned home, saw a bottle of what he supposed to be beer, put it to his mouth and drank the contents. The bottle contained an ounce of carbolic acid in liquid form, or ninety per cent. of the pure acid, mixed with several ounces of paraffin oil such as is used for illuminating, and which the women of the family were using for sanitary purposes. When his friends discovered what the man had taken they gave him an emetic of mustard and warm water and sent for the doctors, who saw him soon afterward, when he was vomiting, and had evidently got rid of the poison. There was no erosion on the lips, mouth or throat, and he recovered without a bad symptom, a result probably due to a modifying influence on the part of the paraffin oil.

**Formalin, or Formaldehyde**, is the subject of a recent interesting paper prepared by J. Lardner Green,<sup>2</sup> M.R.C.S., England, L.S.A., of Salisbury. In his communication he gives the results of his own and others' experience in the administration of formic acid and formalin by inhalation as a preparation for and aid to the open-air treatment of phthisis. The dilute 1 per cent. solution of formalin in water, he says, has no corrosive action, and is harmless to warm-blooded animals; and a tablespoonful in a quart of water suffices for the disinfection of rooms and clothing. Aronsohn found that a 1:20,000

solution of formic aldehyde in water destroyed typhus and anthrax bacilli. It has the advantage of being available for use in a vaporized condition, and thus being able to disinfect perishable materials without destroying them. Formalin is valuable as a disinfectant and deodorant for cleansing septic wounds, destroying the bacteria, combining with the fibrous tissues, and promoting rapid healing.

The author quotes Dr. Mitchell to the effect that formalin is useful in the treatment of malignant growths; and declares it is useful to the physician when inhaled in a fine spray in catarrhal and tuberculous affections of the lungs, diseased tissues being more tolerant of the vapor than are healthy mucous tissues. Formalin has also been used successfully in various skin diseases, notably epidermycosis decalvans, and E. tonsurans.

Years ago, when in search of the best means of preserving cut flowers in their pristine colors by destroying the organisms causing fermentative changes (whereby their colors were lost), the author found formalin best for the purpose, flowers treated with it retaining all their brilliance, in strong contrast with ordinary dried flowers. This germicidal property led him, in 1895, to experiment with formalin in the treatment of catarrh and influenza with the hope of destroying the microbes accompanying those diseases. Success was immediate and decisive. Then followed its trial in the early stages of pulmonary tuberculosis, with the result of diminishing the number of bacilli in the sputum, which result was confirmed by other observers. The first inhalers used not being capable of producing a very fine spray, others were tried until an almost invisible vapor was obtained.

The most satisfactory mixture for inhalation has been 1 dr. of formalin and 4 dr. of glycerin to 5 oz. of water, with the addition of 10 min. of aromatic spirits of ammonia if there was more than usual sensitiveness of the air passages, used four to six times in the twenty-four hours. The author cites cases comprising phthisis, chronic bronchitis, and pneumonia, in which uniformly flattering results were obtained, and thinks there is a bright prospect of success with inhalations of formalin in suitable cases of phthisis, especially in combination with the open-air treatment: for he believes that by its use the cure will be more rapid, thus shortening the time spent in the sanatorium—a great consideration with poorer patients, who form absolutely and relatively the majority of consumptives.

<sup>1</sup>*Lancet*, 1, No. 10, p. 1756.

<sup>2</sup>*N. Y. Lancet*, XXI, No. 4.



**Copper Arsenite and Nuclein** solution have for some time been advocated as almost specific in enteric fever. Dr. J. C. Wilson,<sup>1</sup> of the German Hospital, Philadelphia, Pa., was asked to investigate their value in an epidemic of that disease and consented. The drugs were supplied by Dr. John Aulde, who asked Dr. Wilson to take up the matter. In a letter to Dr. Wilson Dr. Aulde said that under this treatment he believed that enteric fever could be brought to a favorable termination in from three to five days. Dr. Wilson now publishes his results as shown by ten cases giving temperature charts, history, blood examinations, duration of the disease, etc. The report concludes with the statement that it is a well-recognized fact that short series of cases are entirely without weight in estimating the value of particular forms of treatment in a disease like enteric fever. This series of cases, however, brief as it is, shows conclusively that Dr. Aulde's confident prediction that enteric fever under treatment by nuclein and copper arsenite can be brought to a favorable termination within a period ranging from three to five days is absolutely without support in fact. The unsatisfactory course of all the cases submitted to the treatment except three, the high mortality and the general unfavorable impression made by the cases thus treated, as compared with the bath cases, precluded further clinical studies in the matter.

**Strychnine** in *opium poisoning*, is the subject of a communication from Dr. Henry Smith,<sup>2</sup> of Streatham, Eng., who reports the following case: The patient, at least half an hour before being found, had taken 3 oz. of laudanum. The friends immediately gave an emetic of mustard and water. On the arrival of the author three-quarters of an hour later, he found the patient nearly comatose, with all the usual symptoms of profound opium poisoning. A subcutaneous injection of apomorphine was given, which produced free vomiting, the vomited matter smelling strongly of laudanum. The stomach was quickly washed out, but coma continued profound. The subcutaneous injection of atropine sulphate and strychnine sulphate were given alternately and pushed until each produced characteristic symptoms. At the end of seventy minutes after the doctor's arrival the pupils, instead of being "pinhole" were well dilated, and the legs and arms were twitching. The total amount of atropine sulphate given was  $\frac{1}{2}$  grn.

(in five doses of  $\frac{1}{10}$  grn.) and that of strychnine sulphate  $\frac{1}{10}$  grn. (in six doses of  $\frac{1}{10}$  grn.). In the intervals between the injections strong coffee was siphoned into the stomach, and friction kept up energetically over the whole body, while warmth was provided by blankets and hot water bottles. At the end of seventy minutes, the patient being still in collapse and unconscious,  $\frac{1}{10}$  grn. digitalin was given subcutaneously. During the following four hours there was steady improvement; but during the next half hour the pupils became nearly "pinhole" again, and the breathing was slightly stertorous. Two more injections of  $\frac{1}{10}$  grn. each of atropine sulphate were given at intervals of fifteen minutes, and at the end of another period of three hours the patient was out of danger.

**Atropine** in massive doses in cases of *intestinal obstruction* where for one reason or another early surgical interference defers to an expectant plan of treatment is recommended by Dr. Batsch,<sup>1</sup> of Grossenhain. In these cases he advises recourse to subcutaneous injections of atropine exceeding more or less the doses usually given. While belladonna has been frequently employed in intestinal occlusion, atropine is not generally mentioned among the remedies used for this condition. Dr. Batsch, however, and many of his *confrères* who have followed his example—notably Drs. Gebser and Fesner, of Riesa, and Dr. Scheumann, of Grossenhain—have obtained very good results by means of the hypodermic use of atropine in doses varying from  $\frac{1}{10}$  to  $\frac{1}{2}$  of a grain, according to the strength, constitution, and age of the patient. In some instances a single injection is sufficient to effect a resolution. In others the first dose only produces a passage of gas and a small quantity of fecal matter, a second injection on the following day being necessary to complete the cure.

**Iodipin** is reported by T. W. Friese<sup>2</sup> to be reliable, the results following its employment good, it being better borne by the patient and decidedly more acceptable than potassium iodide, while gastric disturbances or iodism were never observed. When patients objected to iodipin on account of its oily taste, it was given subcutaneously or per rectum. Especially in syphilis was the result of iodipin noteworthy, in many cases being better even than the mercurials. These good results obtained by the use of iodipin are to be ac-

<sup>1</sup>*Penn. Med. Jour.*, III, p. 561.

<sup>2</sup>*N. Y. Lancet*, XXI, No. 4.

<sup>1</sup>*Bul. Gén. de Thérap.*, May 8, 1900.

<sup>2</sup>*Med. News*, LXXVI, p. 784.

credited to the fact of its slow decomposition within the body, the iodine being given off in all probability in the blood itself and then only gradually. This insures the gastro-intestinal tract against the malign influences of the free iodine, and for that reason iodipin may be administered for a prolonged time without bad constitutional effect. The fact that iodipin circulates in the body-fluids and thereby becomes deposited in the various organs allows the freed iodine to act directly upon the cell. Frieser demonstrated the presence of iodine in urine and saliva fifteen minutes after its administration per os, while after subcutaneous use it required three or four days to be detected in these secretions. In the feces iodine was scarcely ever present. Iodipin, which is prepared from iodine and oil of sesame, is obtainable in ten and twenty-five per cent. strengths. In appearance and taste it resembles oil of sesame. It is extremely stable. The dose internally is two to three fluid drams of the ten-per-cent. preparation, while per rectum as much as five to seven fluid ounces may be given in enemas. The twenty-five-per-cent. iodipin is used exclusively for subcutaneous injection. The iodipin is to be given about two weeks at a time and its oily taste may best be corrected with peppermint oil, syrup of orange peel, or other aromatics. For subcutaneous injection, about ten cubic centimeters are used in the gluteal region or the back. A needle of slightly larger caliber than usual is advantageous for this purpose. In order that the twenty-five per cent. iodipin may become less dense it is frequently warmed before using it by placing the bottle containing it in warm water. Besides using iodipin in syphilitic cases, the author has had much success with it in emphysema and asthma. Bearing in mind all the advantages of iodipin over potassium and other iodides, he is forced to consider the advent of this new preparation with the greatest favor.

**Suprarenal Extract** and its use both internally and locally is enthusiastically advocated by Dr. Beaman Douglass<sup>1</sup> in the treatment of hay fever, for which he considers it almost a specific, and certainly the best single remedy at our command. In his experience, the best results are obtained when the nasal symptoms are prominent and there is much congestion. Neurasthenic patients and those having neuroses in connection with hay fever are also favorably affected by the remedy. On the other hand, little or no benefit is experienced where there is cardiac degeneration or where there

is loss of vascular elasticity due to atheroma or resulting from interstitial nephritis. For internal administration, he advises the 5-grn. tablet every two hours until physiological effects are observed, after which the interval should be gradually increased to three, six and twelve hours, at which last figure it should remain throughout the hay-fever season. Locally, a six or twelve per cent. solution in water should be applied by means of a spray or upon pledgets of cotton every two hours or less often as indicated.

**Epicarin** in the treatment of *scabies* and *prurigo* is strongly commended by Dr. Carl G. Pfeifferberger.<sup>1</sup> He uses it in the form of an ointment composed as follows:

Epicarin .....	7
Chalk .....	2
White Vaseline.....	30
Lanolin .....	15
Lard.....	45

This is rubbed in every evening without preliminary bathing, and ordinarily, even in severe cases, six or seven applications are sufficient for a complete cure. As the remedy seems to be without effect on eczema, complications of that nature are treated with diachylon or zinc ointment.

**Aspirin** in the treatment of *rheumatism* and *allied affections* is strongly commended by Dr. Herm. Liesau.<sup>2</sup> His method of administration is to give the entire daily quantity of 3 or 5 Gm. in doses of 1 Gm. (15 grn.) each at hourly intervals during the afternoon. Usually he gives the remedy in powder form, reserving the tablets for patients who are very weak. His report covers eighty cases of all kinds of rheumatic affections as well as some other fevers, and exudative pleuritis and pericarditis. Twice only was intoxication by the drug observed, although some of the patients had previously suffered from salicylates in similar circumstances. Stomach disturbances were entirely absent under aspirin. The first effect of the remedy was generally a rapid and marked fall of temperature, accompanied by profuse diaphoresis. Next, pains, even of a neuralgic character, became greatly relieved, so that in almost every instance the patient was able to secure a good night's sleep. In rheumatic cases, the joint swellings subsided in a few days, but absorption of the exudate proceeded more slowly. Disturbance of the heart's action was not observed in any case. The doctor strongly

<sup>1</sup>N. Y. Med. Jour., LXXI, p. 725.

<sup>1</sup>Klin.-therap. Woch., VII, p. 586.  
<sup>2</sup>Deut. med. Woch., XXVI, p. 338.

emphasizes the fact that in typhoid and other febrile conditions the long-continued use of aspirin produces neither stomach disturbance nor failure of appetite.

**Gonorrheal vesical irritability** in female is treated by cleansing the urethra with bichloride solution and applying pure ichthyol, according to Dr. C. S. Jones,<sup>1</sup> and 2 minims of ichthyol with 5 minims of santal oil given internally, inclosed in gelatin capsules, every three hours.

**Sulphur** is suggested as a preventive of *mosquito bites* by the interesting experiment of a friend of the writer,<sup>2</sup> who, seeing a statement in an English journal that sulphur taken internally conferred immunity to flea bites, began taking effervescent tablets of tartar lithine and sulphur and then exposed himself to the attacks of several lively mosquitoes, who settled on his skin, but showed no disposition to bite. If this experiment should be confirmed by further trials, it might be well, in view of the growing opinion that the mosquito is the common vehicle of the plasmodium of malaria, for particularly sensitive persons to take a course of sulphur as a prophylactic measure.

**Hydrogen Peroxide** has been found very useful as a local anesthetic, by Dr. H. E. Kendall,<sup>3</sup> of Sydney, N. S., who has used it for over a year in opening abscesses, removing redundant tissue, opening the pleural cavity and even, on one occasion, the abdominal cavity. The doctor states that subcutaneous injection of this agent is followed by immediate and complete local anesthesia. He does not believe that any absorption takes place, as "the intercellular inflation from the gas generated seems to produce such pressure that the skin cuts like frozen tissue."

**Streptococcus Antitoxin** is reported by Dr. R. B. Mahon<sup>4</sup> as successfully employed in the treatment of a case of *septic thrombophlebitis*. Treatment at first was by absolute rest, belladonna applications, hot fomentations and poultices locally, and 8-grm. doses of salol internally, followed later, on account of rapidly failing strength, by heart tonics. The result of these measures was

not satisfactory and the patient's condition soon became desperate. At the time of the first injection of the antitoxin, 10 Cc., her temperature was 103° F., pulse 125 and very weak. On the next day the temperature had dropped to 100°, but conditions otherwise were unchanged. Another injection of 10 Cc. was then given and, by the second day thereafter, the temperature had fallen to normal, the pulse was steady at 96, and the local pain and tenderness were subsiding. No more antitoxin was given, and the further history of the case is one of steady progress to recovery.

**Ethyl Bromide** is regarded by Dr. Paul F. Sondern,<sup>1</sup> as one of the safest and best anesthetics for use in short operations especially upon the naso-pharynx and throat. The substance, he says, should be absolutely pure. It must be very volatile; when poured on the hand, it must evaporate rapidly and completely, without leaving any residue whatever. It must be entirely colorless—a yellowish tint showing that decomposition has taken place, liberating bromine. The odor must be sweetish.

The purity of ethyl bromide depends upon its mode of preparation. That commercially prepared by distilling a mixture of bromine, absolute alcohol, and phosphorus is a poor production. The proper method of obtaining an article suitable for safe anesthesia is by the decomposition of the spirit of wine by pure sulphuric acid in the presence of bromide of potassium and then rectifying it by distillation over the oil of sweet almonds.

Light, humidity, and exposure to the air decompose it; therefore it should be used only when put up in sealed colored glass; but an important point is that even under these conditions it is liable to spoil in a few weeks. Fresh solutions should be used.

It acts as a vaso-dilator, and, being without fear of syncope, the patient may be placed in a sitting position, making it especially valuable for throat operations. The mode of administration is entirely different from that of chloroform, as with ethyl bromide the quickest possible inhalation must be obtained.

The entire quantity—for a child, five to ten Gm. (1 to 2 fl. dr.); for an adult, ten to twenty Gm. (2 to 4 fl. dr.) never exceeding this quantity—is poured on the anesthesia mask, a mask admitting the smallest possible quantity of air.

Anesthesia is obtained in from twenty to forty seconds. At all events, operation is

<sup>1</sup>*Jour. Amer. Med. Ass'n*, XXXIV, p. 861.

<sup>2</sup>*N. Y. Med. Jour.*, LXXI, p. 729.

<sup>3</sup>*Med. Record*, LVII, p. 928.

<sup>4</sup>*Brit. Med. Jour.*, 2055, p. 1220.

<sup>1</sup>*N. Y. Med. Jour.*, LXXI, p. 910.



begun one minute at the longest after the commencement of administration. The mask is removed and not again applied. Administration must be arrested at the proper moment, which can be noticed by the relaxation of the muscles of the neck and arms. The arms if raised fall inertly, the head can be turned passively: but these will receive only secondary consideration, attention being fixed on the eyes, which remain open, and the proper moment is recognized when the pupil dilates and the conjunctiva begins to slowly suffuse. If this moment is neglected, and the anesthetic is continued, the muscles contract and become rigid, and there is danger of asphyxia, for the glottis is apt to contract reflexly upon being touched.

If the proper operative moment is passed, all that can be done is to wait until the patient comes out from the anesthesia somewhat; but, as this occurs rapidly, it will generally be impossible to operate without recommencing the anesthetic—advisably, at some other time. If administered to the above proper degree, the anesthetic effect lasts for about two minutes, and the patient is almost immediately able to be put on his feet and walk, experiencing no uncomfortable sensations whatever.

For patients from three to sixteen years of age this anesthetic has no equal for short operations; under that age chloroform is certainly the best, and in older patients there may be an excessive excitement for some hours after the administration of ethyl bromide. The fatal cases recorded can be traced to one of the following causes: The use of ethylene bromide instead of ethylic bromide; the use of an old solution: the use of the drug in repeated small quantities: the continuation of administration for longer than one minute.

It is to be remembered that the mask should not be applied oftener than twice at one sitting, a fatal case being reported where death occurred at the third application.

**Strychnine** in heroic doses in *tic douloureux* is considered by Dr. Charles L. Dana,<sup>1</sup> whose experience covering six or seven years and fifteen cases of *tic douloureux* has enabled him to reach the following conclusions concerning this plan of treatment: If the duration of the disease has been only a year or two in anemic and exhausted patients, the treatment will almost invariably control or arrest it. If the disease has lasted six or seven years, or if there is neuritis or sclerosis, the effect of the treatment is

doubtful and it may fail to secure even a remission. In anemic cases, even of long standing, better results may be expected, though relapses will occur. In cases that have persisted for fifteen or twenty years, all medical treatment is useless. Narcotics in this affection are condemned by Dr. Dana as dangerous and seldom efficient.

**Chaulmoogra Oil** for macular leprosy was spoken of before the Clinical Society, of London, by Dr. T. D. Savill,<sup>1</sup> who exhibited a boy of fourteen whom he was treating with this drug. The patient first manifested signs of the disease at the age of 10, when erythematous and pigmented raised patches, mostly anesthetic, appeared on various parts of the body. The remedy was given in doses of 12 drops daily with persistent increase, so that by the end of a year the daily quantity had become 400 min., which produced no appreciable disturbance of either the digestion or the general health. Under the influence of this treatment, the anesthesia, swelling and erythema had entirely disappeared from the patches and the pigmentation was rapidly fading.

**Pernicious Anemia** has been successfully treated with anti-streptococcic serum, according to Dr. William Elder,<sup>2</sup> who reports the following case: The patient, a man of 35 years, was admitted to Leith Hospital on Jan. 27, at which time he presented a typical picture of the disease. He was exceedingly pale, with slight yellowness of the ocular conjunctiva; his respirations were very rapid and his pulse almost imperceptible. There was no splenic enlargement. The temperature was 100.8° F. Milk diet and a febrifuge mixture were prescribed with half an ounce of whisky every six hours. By the first of February, his temperature had become normal, with a pulse of 100, but he was very suspicious and excitable and refused drugs. As he was quieter on the 3d, he was put on convalescent diet, and the following treatment was begun: Five grn. of salol and 15 of bismuth salicylate were given every six hours and a mouth wash was ordered, consisting of 1 dr. of tincture of myrrh and 24 grn. of carbolie acid to 6 oz. of water. Eight Cc. of anti-streptococcic serum were then injected into the subcutaneous tissue below the iliac crest, which locality received all subsequent injections, as follows: on the 5th, 8 Cc.; 7th, 10; 9th, 5; 13th, 10; 15th, 10; 17th, 10; 19th, 10; 21st, 10; 23d, 10; 26th, 10; 28th, 10; March 4th, 10; 8th, 10:

<sup>1</sup>*Lancet*, I, 1900, p. 1283.

<sup>2</sup>*Lancet*, I, 1900, p. 1193.

<sup>1</sup>*Jour. Amer. Med. Assoc.*, XXXIV, p. 1100.

12th, 10; 15th, 10; 18th, 10. No more serum was given, as the patient seemed almost well, with the exception of some nervous symptoms. There was no other medicinal treatment of this case except the occasional exhibition of a laxative or hypnotic. Periodical examinations of the blood gave the following results:

Date.	Red Corpuscles.	Hæmoglobin.	Leucocytes.
Jan. 29 . . . .	797,500	24%	4520
Feb. 7 . . . . .	1,962,500	44%	4700
" 13 . . . . .	2,340,000	66%	4500
" 23 . . . . .	3,355,000	66%	5100
" 28 . . . . .	3,700,000	90%	5100
Mar. 10 . . . . .	4,360,000	88%	4500
" 20 . . . . .	4,800,000	104%	....

The author's treatment of this case was based on the belief formulated by Dr. William Hunter, that pernicious anemia is due to a definite infection of certain parts of the alimentary tract, notably the gastric mucosa.

**Epithelial Cancer** and its radical cure by arsenic is the title of a contribution by Dr. C. Fruncet,<sup>1</sup> of Prague, Aus. The method of treatment is as follows: The ulcer is cleansed and dried, sometimes even scraped a little, and is then covered, by means of a brush, with a layer of the arsenical solution, which consists of 1 Gm. (15 grn.) of arsenous acid to 75 Gm. (19 fl. dr.) each of absolute alcohol and distilled water. The solution is left uncovered to dry and if, at the end of five minutes, the patient feels no pain, a second application may be made and also left uncovered. This treatment is followed in a day or two by the appearance on the surface of the tumor of an eschar which is not removed during the daily repetitions of the treatment. In case of the development of acute edema of the surrounding parts, the applications are discontinued until it completely subsides, after which the remedy is used more sparingly. The crust formed changes from a yellowish color to brown and, finally, to black. Thin and firmly adherent to the subjacent tissues at first, it gradually thickens and invades the entire substance of the neoplasm, at the same time slowly but steadily separating from the healthy tissues. When separation is complete, the eschar is either removed or falls of itself. A single application of the solution is then made to the bottom of the ulcer. If the result is a yellowish crust, easily removed without hemorrhage, treatment for cancer is stopped, but if an adherent dark crust is formed, the applications are continued until the last cancer cell has been destroyed. In case there is no

superficial ulceration, treatment is initiated by scarification of the excision of a section of skin over the tumor.

This method of treatment is only applicable to cases in which there is no induration of the neighboring glands, but in the author's opinion it is indicated in the early stages of all superficial cancers and is practically the only possible method in cases of diabetes, hemophilia, etc. The duration of treatment varies with a number of circumstances. The author's conclusions as to the *modus operandi* of this treatment are that the alcohol dehydrates the cancer cells and that their protoplasm then coagulates in the presence of arsenic. The cells of the cancerous stroma then degenerate and provoke a serous exudation which determines alterations in the cells mummified by the arsenic. Meanwhile, the remedy sets up in the surrounding healthy tissues a circumscribed inflammation which always terminates in suppuration, thereby cutting off the neoplasm from the circulation and causing its eventual elimination as a foreign body.

**Seasickness** treated by inhalations of pure oxygen under pressure is the title of a paper read before the Paris Academy of Medicine by M. Dutremblay.<sup>1</sup> His experiments were made on a number of passengers on vessels of the Compagnie Générale Transatlantique, Dr. Perdrillot of the service assisting. A great many trials demonstrated the effectiveness of this treatment. Rapid relief was obtained, the nausea and sickness disappeared, and quiet, refreshing sleep followed. From 30 to 40 liters of the gas should be administered through the mouth, the nostrils being kept tightly closed. Inspirations should be deep and regular. The dose may be repeated if necessary.

**Pemphigus** patients, according to Dr. J. V. Shoemaker,<sup>2</sup> of Philadelphia, should be fed on plain, nutritious food. Malt liquors and oils, he says, are advantageous in this affection. The medicines employed should be such as improve the quality of the blood and promote nutrition in general and that of the nervous system in particular.

Among the most efficient remedies which he recommends for use in pemphigus are arsenic, quinine, iron, and strychnine. A combination of arsenic and quinine given by hypodermic injection is highly esteemed. Large doses of potassium chlorate answer an excellent purpose. The mineral acids are useful when there is gastric failure.

<sup>1</sup>*Lancet*, I, 1900, p. 1251.

<sup>2</sup>*Med. Bul.*, XXII, p. 44.

<sup>1</sup>*Med. Record* LVI, p. 93.

Constitutional symptoms are to be treated upon general principles.

In the local management of pemphigus the bullæ should be first punctured and the surface then covered with a soothing, slightly astringent and antiseptic dusting-powder, ointment, or lotion. It is often of service to apply an ointment or lotion and over it to dust the medicinal powder. Plain or medicated baths are of undoubted value in the treatment. The water should be warm or tepid, and bran, starch, gelatin, or sodium bicarbonate may be beneficially added to the bath.

Among substances which have proved of avail as topical remedies are zinc carbonate, zinc oleate, witch-hazel, grindelia robusta, lead acetate, potassium chlorate, bismuth, naphthol, salicylic acid, carbolic acid, etc.

Dusting-powders are often the most satisfactory applications to ruptured bullæ. The preliminary use of a salve spread lightly over the surface insures the closer adhesion of a powder. If a combination causes smarting or pain diminish its strength at once. On the contrary, if it seems too weak it can easily be strengthened.

The doctor prescribes as a medicine to be taken internally:

Arsenous Acid .....  $\frac{1}{20}$  grn.

Iron Pyrophosphate..... } of each, 1 grn.

Quinine Sulphate..... }

Strychnine Sulphate.....  $\frac{1}{40}$  grn.

Make 1 pill and let the patient have one three times a day.

Locally the following ointment should be applied:

Salicylic Acid ..... 10 grn.

Carbolic Acid ..... 15 min.

Oil Eucalyptus..... 10 min.

Lead Subacetate Ointment..... 1 oz.

**Tetanus** successfully treated with injections of antitetanic serum is the subject of a report by G. Lloyd Roberts,<sup>1</sup> M.B. While waiting for the serum, which was not immediately procurable, treatment was begun with full doses of bromide and morphine and these were continued for some time after the arrival and use of the serum, without appreciable effect, however. The first injection was of 10 Cc. at 6 P. M., and, the next morning, ten more were given as the patient's condition had become worse rather than better. The next morning he was still worse and 10 Cc. more were injected. As there was no apparent improvement the following day, the wound was excised and scraped and an injection of 20 Cc. was given. In a few hours there was appreciable improvement which continued

during the next day when he was given 10 Cc. During the next twenty-four hours, two injections of 10 Cc. each were administered, and on each of the following days, a single injection of the same quantity. Two days later, on a slight return of the symptoms, a final injection was given. From that time, improvement was continuous. During the entire period of treatment, care was exercised to keep the bowels open by means of enemata and large doses of calomel. The author calls attention to the action of the serum, to which he gives full credit for the result, in at first increasing the severity of the symptoms which did not begin to improve until 50 Cc. had been injected. The diagnosis in this case was verified by bacterial examination.

**Pneumonia** has responded in a very satisfactory way to the following course of treatment advocated by J. Latchford,<sup>1</sup> M.B., Lieut.-Col., R.A.M.C., of Bodium, Eng. He has found it particularly useful in severe cases following influenza. During the initial congestive stage a combination of quinine and gray powder, concurrently with the liquid extract of ergot in 20-min. doses, was regularly administered. The ergot seemed to cause contraction of the capillaries of the lung and to promote resolution. During the second or exudative stage, when the expectoration was profuse and deeply sanguineous, a mixture containing digitalis, iron, quinine, and dilute hydrochloric acid was given at regular intervals with the most happy results. If the case were asthenic small quantities of stimulants were given in addition. He considers that the digitalis and quinine acted as antipyretics controlling the engorgement of the lungs and limiting the amount of sputum; while the hydrochloric acid and iron acted as valuable constructives, the administration of which need not be held to be contraindicated by a furry tongue, which disappears with the fever.

**Senile Bronchitis**, according to Dr. Wilcox,<sup>2</sup> of New York, tends always to become chronic, and treatment can only be symptomatic. The first consideration is usually the lessening of the amount of expectoration. Here, he tells us, belladonna, which yields such brilliant results in childhood, generally fails. The true expectorants, as apomorphine or cociliaña, increase the amount so much that the distress of the patient is augmented, and the fixed chest and weakened musculature militate against the expulsion of the sputum, although it may be more liquid. The nauseating expector-

<sup>1</sup>Brit. Med. Jour., May 5, 1900

<sup>2</sup>Amer. Jour. of the Med. Sciences, CXIX, p. 524.

<sup>1</sup>Brit. Med. Jour., 2052, p. 1019.



ants are liable to interfere with digestion, and for that reason are doubly objectionable. Of the drug remedies, he would place strychnine and ammonium carbonate in the first rank. In acute exacerbations of chronic bronchitis ammonium carbonate, in five or ten-grain doses, given in two or three ounces of milk, not only liquefies secretion, but also stimulates the heart, stimulates the bronchial muscles, and thus relieves venous congestion and dyspnea. As a rule, its action is more energetic, as Fothergill pointed out many years ago, when the skin is moist. The only disadvantage is, that after a week or more it is apt to disarrange the stomach; but that period is longer than most patients require its use. For chronic bronchitis and convalescence from the acute form, strychnine sulphate, in from one-fortieth to one-twentieth of a grain, every three to six hours, not only does quite as much as the ammonium salt, but, in addition, is a more powerful stimulant to the right heart, as was shown years ago. Contrary to what is generally supposed, it is not a vasomotor constrictor, and, therefore, does not increase the work of the heart. Besides, this drug improves nutrition by stimulating the spinal cord and peripheral nerves and the respiratory center, aids digestion, and is, in a limited way, a gastric antiseptic. To disinfect the expectoration, creosote carbonate, in twenty-drop doses, given in two ounces of sherry, repeated every four hours until purulency disappears, is effective. Ordinary creosote should never be given to the aged, because of its irritant effect on the kidneys. With copious secretion and difficult expectoration this is the drug of choice, frequently preventing the low fever from absorption of putrid material, which so often occurs. In this connection he would most strongly condemn the use of opium, or any of its alkaloids, which is directly responsible for either speedy death from asphyxia (simply drowning the patient in his own secretion), or more gradually in producing this absorption, to which allusion has been made. Opium relieves cough by rendering the patient unconscious of its cause, and lulls the physician into a feeling of false security.

**Amblyopia** due to quinine was the subject of a report by Dr. M. Coplan,<sup>1</sup> of Cleveland, O., who cited two cases which came under his observation. The first was a boy three years old suffering from quotidian malarial fever. Owing to a misunderstanding of directions, the child received about

30 grn. of quinine in twenty-four hours and, as a result, became totally blind. The quinine was at once discontinued and 6 grn. of strychnine, three times daily, was ordered. Recovery was gradual and, by the fifth day, vision was practically normal. The other case was a woman thirty years old with a very obstinate attack of malarial fever which had resisted 45 grn. of quinine daily as well as various other remedies. She was then given heroic doses of quinine, receiving 150 grn. in twenty-eight hours, after which she became totally blind. Restoration of vision was complete on the eighth day thereafter, the quinine having been discontinued and strychnine and digitalis prescribed in its stead.

**Typhoid Fever** treatment, according to Dr. D. F. Woods,<sup>1</sup> of the Presbyterian Hospital, Philadelphia, requires elimination of the morbid matter from the alimentary canal, reduction of temperature, subjugation of vascular excitement, restraining and moderating excessive diarrhea, stimulating and toning of the nervous system, and obtaining and keeping up free action of the kidneys. To eliminate the morbid matter he recommends sodium bicarbonate with calomel—3 grn. of the former and  $\frac{1}{4}$  grn. of the latter at a dose, and repeated every two hours until the bowels act. To reduce temperature he advises cold sponging with alcohol and water every two hours when the thermometer registers 103° F. or over. When this fails iced water tub-baths should be tried and the patient given digitalis and whisky on leaving the bath.

Intestinal antiseptics are of great value and should be given early. His rule is generally after the patient has had the calomel and soda, and the bowels have been moved, to give beta-naphthol in three-grain doses repeated every third hour. The diet should be milk, repeated every two hours, four to six ounces as the stomach will bear it. If the stomach bears the sterilized milk well, continue. If the bowels are too free add lime-water one-third, or, if necessary, half and half. If this irritates the stomach when disordered, peptonize the milk, and if still disordered and the milk not borne, give albumen water until settled. Saline cathartics and astringents are, as a rule, contraindicated, unless there is hemorrhage; then astringents can be used to advantage. When other complications arise, they must be treated on general principles. The diarrhea should be held in check by subnitrate of bismuth in five or ten grain doses

<sup>1</sup>*Jour. Amer. Med. Assoc.*, XXXIV, p. 1313.

<sup>1</sup>*Internat. Med. Mag.*, IX, p. 253.

and opium suppositories; or laudanum and starch water may be given by enema.

The diet is of the greatest importance in all cases of typhoid. From the very commencement of the disease it should be liquid. Milk, sterilized or Pasteurized, should be the principal nourishment. When the fever has subsided animal broths and jellies may ultimately be given.

Enemas should be used to open the bowels and no solid meat should be allowed for two weeks after the febrile stage. Stimulants are not needed in the early part of the disease, and when required they should be given well diluted. Effervescent wines should rarely be given. While the pulse remains under 120 and retains moderate force four ounces of brandy or good whisky is sufficient for twenty-four hours. When it ranges between 120 and 130, and is small, the amount may be doubled. If, after twelve hours, the heart does not respond to this amount then the dose should be trebled. The author states that his experience negatives all claims for the production of artificial immunity with typhoid serum, and he believes that the disease cannot be aborted with any known remedy. Cases that had been apparently aborted by the use of quinine were malarial and on examination of their blood gave negative results with Widal's reaction.

No general rule can be laid down to guide the treatment of the intercurrent phenomena or accidents of the disease. Combinations of remedies must be adapted and the treatment varied according to the functions implicated. Abdominal pains or meteorism may be relieved by turpentine stupes or hot water fomentations. Hemorrhage from the bowels is controlled by an ice-bag to the abdomen, by hypodermics of ergotin, by acetate of lead and opium, by stopping all food or by a clyster of 10 or 15 grn. of lead acetate, with twenty drops of laudanum in four ounces of distilled water. When the tongue is dry and coated with sordes turpentine is a particularly valuable remedy, and is good in all cases.

**Pulmonary Tuberculosis** treated by intravenous injections of hetol was studied in twenty-five selected cases of the disease by Dr. C. A. Ewald.<sup>1</sup> The patients chosen were those whose condition was most favorable for the treatment in question. The injections, which were almost invariably into the median vein, were begun with 1 Mg. ( $\frac{1}{64}$  grn.) of the remedy and were repeated

at intervals of two days or so in gradually increasing strength until a maximum of 15 Mg. ( $\frac{1}{4}$  grn.) was reached. The duration of the treatment varied from 18 to 316 days. In all, 461 injections were made without a single unfortunate result. The most generally observed result of the treatment was marked weariness and desire to sleep, so that in some instances it was difficult to induce patients to take food. The few exceptions to this rule are accounted for on the supposition of suggestion. Another effect of the injections, occasionally, but not generally observed, was a tendency to pulmonary hemorrhage. Temperature and night-sweats seemed to be unaffected by the remedy. No particular change in the behavior of the bacilli was noted in any case. The author's conclusion is that the results of this treatment do not justify the claims of its originator, but that, as it seems to be harmless, it is worthy of further trial.

**Dermatitis Venenata** was successfully treated by Dr. J. A. Colman,<sup>1</sup> of St. Louis, Mo., who reports a severe case as follows: Locally, a 10 per cent. solution of ichthyol and a 1 : 5000 solution of mercury bichloride; internally, a calomel purge followed by capsules of quinine, guaiacol carbonate and phenacetin every four hours. Rapid improvement followed, so that within three days from the beginning of the treatment the swelling had entirely disappeared and the temperature and pulse had become normal. A week later there was no trace of the dermatitis remaining.

**Pruritus** is treated locally as follows by Dr. Lewis H. Adler, Jr.<sup>2</sup> A daily evacuation of the bowels is produced, by the use of drugs, if necessary. As there is always some varicosity of the hemorrhoidal vessels, a rectal injection is made daily for a while of from 1 to 2½ dr. of the following mixture:

Fluid Extract Hamamelis.....	1 oz.
Fluid Extract Ergot.....	2 dr.
Fluid Extract Hydrastis.....	2 dr.
Compound Tincture Benzoin.....	2 dr.
Carbolized Olive or Linseed Oil (5%)	1 oz.

If the skin is harsh and dry, it is painted with a concentrated solution of silver nitrate, and a repetition of this application is made each third day afterwards if the skin does not sooner become supple and healthy in appearance. After the silver solution has dried, the skin within about two inches of the anus is smeared with the official ointment of the nitrate of mercury, which is

<sup>1</sup>*Berl. klin. Woch.*, XXXVII, p. 449.

<sup>1</sup>*N. Amer. Jour. of Diag. and Prac.*, III, 4, p. 13.

<sup>2</sup>*The Phila. Med. Jour.*, V, p. 1093.



covered with a pad of absorbent cotton, held in place by a T-bandage. This dressing is to be worn twenty-four hours unless the itching should become intolerable, in which case the anus may be bathed with hot water, but neither rubbed nor scratched. After the bathing, black wash or calomel ointment is to be applied locally. Dr. Adler has never failed to produce an apparently complete cure when this treatment has been persisted in for a few months, with gradually diminishing frequency of application, however.

**Urticaria**, according to Dr. David Walsh,<sup>1</sup> of London, England, can only be properly treated after finding out its cause, a task that may sometimes be simple but at other times extremely difficult. He tells us that if due to some article of food that has been taken an emetic and a brisk saline purge are the best cure. If the taking of some drug causes it, this must be stopped. In acute transitory cases a little soothing external treatment may be needed for the skin, but now and then the irritation continues and calls for systematic treatment. For the alleviation of chronic cases it is necessary to inquire into every system of the body. The author goes on to say that the state of the teeth, the digestion, both gastric and intestinal, and the action of the bowels, require attention. The uterine and menstrual functions, and the state of the nervous system must be investigated. There is no doubt that the symptom of urticaria is caused frequently by auto-intoxication. Gout and rheumatism, especially the latter, may be active predisposing causes. He says that the *internal treatment* embraces aperients, as aloes and iron pill, or Hunyadi János water and other salines. The gouty and rheumatic states require appropriate remedies. Antipyrine and antifebrin in ten-grain doses, are said by Crocker sometimes to cut short or even to cure an attack. Bromide of potassium, tincture of belladonna, salol, salicylate of soda and quinine may be tried in obstinate cases. Ichthyol, two and a half grains in pill thrice daily, has been much lauded in some quarters. The subcutaneous injection of atropine in doses of one one-hundredth grain, cautiously increased, is worth a trial. Diet is of importance, and each patient should find out for himself if any particular article of food sets up urticaria. In children it is important to avoid sweets, and to give a plain, wholesome diet, consisting largely of milk, while the stomach and bowels may be regulated with small doses of pepsin and gray

powder. In adults, sweets, malt liquors and heavy wines are to be avoided, and regular exercise and plain living enjoined. By care and patience it is possible in the long run to cure the most obstinate cases both in children and in adults.

As to *local treatment* he recommends warm alkaline baths, or sponging with creolin (one dram to eight ounces, lead lotion, carbolic acid (one dram to eight ounces), sanitas fluid (one to three), liquor carbonis detergens (one dram to eight ounces), vinegar and water, or eau de cologne, may give relief. The applications should be changed from time to time, as they appear to lose their efficacy with prolonged use. Generally speaking, antiseptic, astringent and evaporant lotions and baths are preferable to ointments. Patience in investigation, patience in treatment, patience everywhere, is the key to success in the treatment of urticaria.

**Acute Cystitis** and its method of treatment is dwelt upon by Dr. Ramon Guiterras,<sup>1</sup> of New York, in a paper on the causes, diagnosis, and treatment of cystitis. The author states that in acute cystitis rest in the recumbent position is most essential, and that sitz baths, as hot as the patient can bear, with hot rectal douches, ranging from 110° to 120° F., and containing salt, are advisable.

The patient should take internally diluents of an alkaline nature, such as the potash salts; mild urinary antiseptics, such as the salicylates or benzoates, and antispasmodics, as belladonna, hyoscyamus, or codeine. Of the urinary antiseptics, probably the sodium benzoate, 45 grn., sodium salicylate, 60 grn., or salol, 30 grn. a day, in divided doses, are the most efficacious. Of the antispasmodics, tincture of belladonna, 8 to 10 min., tincture of hyoscyamus, 15 to 30 min., codeine,  $\frac{1}{4}$  to 1 grn. or morphine,  $\frac{1}{2}$  grn. to  $\frac{1}{4}$  grn., each to be given three times a day. These can be given combined with the diluents and urinary antiseptics, or singly, as preferred. Very often the spasm and pain at the neck of the bladder are so intense that it is better to give the antispasmodics in the form of a suppository, especially at night, in order to allow the patient to obtain some rest. In this case the suppository should be made of  $\frac{1}{4}$  grn. each of morphine and the extract of belladonna in cacao butter.

If the urethra is not too sensitive, bladder irrigations through the meatus by hydrostatic pressure according to the Janet method should be used. Of these, in the

<sup>1</sup>Gaillard's Med. Jour., LXXII, p. 990.

<sup>1</sup>Medical News, Vol. 76, p. 526.



acute condition, potassium permanganate is probably the best, beginning with a strength of about 1:4000 and increasing it slowly until as high as 1:1000 is used. It will usually take a week of daily irrigations to reach this latter strength, increasing by easy stages. If the potassium permanganate is not efficacious, a solution of silver nitrate may be used, beginning at 1:16,000 and increasing gradually to as high as 1:3000 or 1:4000. Boric acid or boroglycerine, a tablespoonful to the pint, is also of value.

Sometimes when the patient's bladder is very intolerant and about one ounce or more of fluid causes the patient sufficient distress to force him to urinate, it is better to give instillations of nitrate of silver by means of the deep urethral syringe until sufficient tolerance is established to allow the irrigation to be given, as in such a case the posterior urethra is also generally acutely inflamed. In giving these instillations it is well to begin with the strength of 1 grn. to the ounce, and increase up to 10 grn. if necessary. From 5 to 10 min. of such a solution should be instilled at each sitting, and generally every other day is sufficiently frequent for such a treatment. It is surprising how much relief so strong a solution will give when applied to the very acutely inflamed membrane of the vesical neck.

**Acute Lobar Pneumonia** and its treatment is the subject of editorial comment in a late number of the *Medical Record*.<sup>1</sup> After reviewing the various methods pursued in the treatment of this disease in the past, presenting various theories regarding its inflammatory or non-inflammatory nature and inquiring as to the possibility of its abortive treatment, the writer holds out the hope that it may be aborted. The fact that the pneumococcus is the most vulnerable of germs in its relation to antiseptics encourages this hope, and he states that creosote, calomel, quinine, and sodium salicylate are the drugs possessed of germicidal properties best calculated to produce the desired effect. Leaving out of the question the three former drugs, we will briefly consider the use of salicylate of sodium in the treatment of pneumonia, as demonstrated by the experience of some who have witnessed its effects. Sir Hermann Weber, in *The Practitioner*, February, writes as follows: "Sodium salicylate was tried in quantities of 20 grn. to 40 grn. per day at the German Hospital, London. The effect was quite satisfactory on some

persons in diminishing the pyrexia, the pleuritic pain, the thirst, the dry heat of the skin, and perhaps also the duration of the acute stage. In other persons the excessive perspiration produced by the remedy, and the noise in the ears, rendered this treatment disagreeable; the most objectionable effect, however, on some persons was excessive headache, and on some others the appearance of blood and albumin and casts in the urine, so as to oblige us to stop the remedy. Although it cannot be denied that in some cases the salicylate acted beneficially, it produced, as just stated, in others unpleasant and in some even injurious effects." Pye-Smith refers to the use of the salicylates in these words: "Salicyl compounds are only indicated when pneumonia occurs as a complication of rheumatism." Dr. de Becker recommends salicylic acid for acute pneumonia, and believes that if administered at an early stage in the disease it is a sure preventive.

Eleven out of twelve patients treated thus by him were quickly cured. He has also noted that the expectoration after the use of salicylic acid becomes liquefied, and is of the opinion that in the giving of the drug the expectoration should be the guiding symptom. Debility and heart disease should contraindicate this treatment. The most favorable reports of the action of salicylate of sodium come, one from Austria and the other from this country. The first stated that a series of seventy-two cases of pneumonia occurring in Austria had been treated with large doses of sodium salicylate, 120 grn. daily. All of these patients had recovered, and in not one had the disease terminated by crisis.

Dr. Sebring, of Kingston, N. Y., deals with seventy-five cases of pneumonia treated with 120 grn. daily of the same drug, with the result that but one patient died. Dr. Sebring also says that out of one hundred and twenty-five cases of pneumonia treated with salicylate of sodium in his neighborhood only one proved fatal. Of course these results are magnificent, and if the drug should be found as effective after a more extended trial the problem of how best to treat acute lobar pneumonia will be solved once and for all. Until its use has been more wide-spread than is at present the case it will be as well to express no pronounced opinion as to its curative properties.

Regarding an antitoxin for pneumonia, the writer declares that investigators have not yet succeeded in producing a reliable article, although there are some indications of success in this direction.

<sup>1</sup> *Med. Rec.*, LVII, p. 678.

**The Opium Habit** treated by the bromide method is the subject of an interesting communication by Dr. Archibald Church,<sup>1</sup> professor of clinical neurology in the Chicago Medical College. The purpose of the bromide treatment, he says, is to stupefy the patient utterly for a number of days, during which time the opium is rapidly withdrawn, and the physical disturbance secondary to its withdrawal recovered from. The plan of treatment was hit upon by accident. In 1897 a neurasthenic lady, who had been addicted to morphine for nine years, was given, accidentally, two ounces and a half of sodium bromide in something over two days. A profound sleep was induced, lasting several days, and when its effect wore off the craving for morphine had ceased, and with it the various disturbances which had led to its use. A few months afterward, a pilot who was addicted to morphine and alcohol agreed to try the effect of the treatment, and no suffering was experienced during the withdrawal of the morphine, the craving for which, as well as the alcoholic inclination, disappeared on recovery from the bromide sleep. The method was tried in a case of acute mania, a Chinaman addicted to chloral, a neurasthenic woman with uncontrollable vomiting; and several morphine and cocaine sufferers were reported cured. These representations led the author to try this line of treatment. Of the two cases in which the trial was made, one, a physician forty-nine years old, had acquired the opium habit fifteen years before. He had taken as much as sixty grains of morphine daily, but had gradually reduced the amount to ten grains. In the treatment, sodium bromide was used in 2-dram doses, and the patient slept soundly most of the time. The characteristic symptoms of bromism soon supervened, with sneezing, free secretion of mucus, irregular respiration, and weak pulse. These were combated with strychnine and atropine, and at one time his condition was so alarming that oxygen had to be administered for five minutes every hour. The bromide was continued for five days, nearly six ounces being given altogether. Recovery, which took place gradually and was assisted with tonics and liberal diet, left nothing to be desired. Sexual power, which had been absent for years, promptly returned, a feeling of strength, buoyancy, and mental capacity was immediately established, and he went back to his professional work, which he has carried on with satisfaction, and promptly picked up the weight that had been lost. There was no relapse.

In the other case the result was not so

favorable. An old nephritis developed into an acute one and the patient finally died of uremia.

The method of administration may be formulated somewhat as follows: The drug should be given only in the day-time. One hundred and twenty grains of sodium bromide in half a tumbler of water, every two hours, until an ounce is given in the first day. The second day a smaller amount is given in the same way, and this may be sufficient, or it may be necessary to continue the doses in the same way on the third day. The safe rule is to cease the administration of the bromide after twenty-four hours, when drowsiness is so profound that the patient cannot be roused, or, when aroused, is incoherent. If the sleep continues or becomes deeper, no more bromide will be needed. It is to be remembered that the bromide acts in a cumulative manner. After the second or third day, when the bromide is withdrawn, the drowsiness, in some cases actual coma, tends distinctly to deepen for forty-eight hours, so that the fully developed sleep presents a rather alarming condition to any one not familiar with it. For two or three days there is difficulty in feeding the patients, and swallowing is sometimes impossible, so that rectal alimentation is required.

During this treatment there is apparently a tendency to aspiration pneumonia, so that feeding by the mouth becomes doubly dangerous. Any septic condition in the pharynx or in the antra communicating with the mouth should contraindicate the treatment. The poisonous effect of the bromide falls apparently upon the respiratory and cardiac centers, so that a weak heart or impaired pulmonary conditions would furnish reasons against the method. The bromide of sodium in large quantities acts harmfully upon the kidneys, if diseased, and therefore any degree of nephritis should be a contraindication to this line of treatment. The plan of treatment, the author concludes, is very far from being simple and without danger, but, as compared with the difficulties of the ordinary methods that are pursued in correcting the addiction to morphine, it seems to be of very definite value in well-selected cases, under appropriate conditions and with hospital facilities.

**Pruritus Ani** is treated by Dr. S. C. Dumm,<sup>1</sup> of Columbus, O., with the following:

Codeine..... 3 grn.  
Ichthyol..... 60 min.

Make 12 suppositories. Insert one at bedtime.



# The Prescription

We wish to have our readers use this department with the utmost freedom. Any question about the prescription or about any substance used in prescriptions comes within its range. We shall do our best to find correct answers for all, and if we fail for lack of information at hand, some one of our readers may be able to give the right reply. On questions of therapeutics or practice we shall not attempt to give any opinions of our own, but find for the questioner what the best available authorities on such subjects have to say upon them. Let every reader resolve his doubts about compatibilities, doses, latest remedies, best methods of administration, dangers of remedies, etc. Send in favorite prescriptions and let others be benefited by what you have discovered. We shall give full credit for all such information. As some persons do not care to have their names appear as the authors of queries, we will refrain from giving names in this connection when requested to do so. Sometimes it is an advantage to have the writer's name published, and in such cases we hope that overdifidence will not interfere with the right.

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V. E. T., of New York, seeks information concerning the effect of resorcin upon pepsin. He wishes to know whether or not the presence of resorcin in a prescription calling for pepsin would destroy the pepsin or render it worthless. While resorcin inhibits the action of pepsin it does not destroy it. To overcome the inhibiting power it would only be necessary to increase the dose of pepsin or essence of pepsin in the prescription. The amount of inhibition is but slight where doses of only a grain or so of the resorcin is given at a dose. With larger doses of the resorcin the damage to the pepsin is greater. Alkalies, like the carbonates or bicarbonates of sodium, potassium, ammonium or lithium, destroy the activity of pepsin even in small quantities. These should never be prescribed with pepsin, and yet many doctors forget this marked incompatibility and order them together.

Dr. W. H. H. Githens, of Philadelphia, Pa., writes: "In Orexine I think you have given us a remarkable remedy. I first tried it on a case of atony of the stomach and bowels. The patient did *not* suffer from indigestion, but from discomfort and distention after eating; and pepsin, pancreatin, and all the long list of ferments had no power to relieve. Constipation was the natural condition, but gentle laxatives would cause diarrhea. The result from Orexine in this case is so far satisfactory and I wish to continue its use; the flatulence, distress, constipation and consequent disturbed mental condition are all better, and I wish to see if I can make a cure. I am also trying it in infantile slowness of digestion and imperfect digestion where I had previously used 'Caroid,' and here also I have secured good results."

D. R. B., of New York, wishes information regarding the kind of weight used by manufacturers and wholesale druggists in making up their packages of goods and filling orders. He is uncertain whether it is apothecaries' or avoirdupois, and is anxious

to learn whether he gets 480 grains or only 437.5 when he orders an ounce of quinine, morphine or strychnine. He likewise seeks information concerning the keeping qualities of hydrogen peroxide. He says: "Some time ago I conceived the idea that my hydrogen peroxide would keep better if I could have it under pressure with oxygen. This I accomplished with apparently good results by putting the peroxide into a 'siphon' such as is used in dispensing carbonated waters over the bar, then charging it with oxygen; peroxide can be withdrawn in any quantity by simply pressing the lever. I have no means of knowing the real results, though it seems to me that the peroxide loses strength about as before. Will you please consider the subject." In reply to our correspondent's first question we will say that the American system of weighing merchandise, as such, is the avoirdupois. Every line of business uses it where the metric has not been adopted. Manufacturing chemists and wholesale druggists follow the same rule as other merchants, and retail druggists do the same, except when compounding prescriptions. There he must obey the doctor, the signs of whose prescriptions indicate only apothecaries' weight. A prescription for an ounce of salts, if written in prescription style, would bring to the writer 480 grains, but if ordered in the usual style of ordering merchandise only 437.5 grains would reach the writer. We can only confirm our correspondent's doubt in replying to his second question. His scheme for the dispensing of his peroxide seems to be a good one so long as his "siphon" is full enough to draw, but the protective power of such an arrangement over his peroxide probably amounts to nothing. The change in the peroxide is not a mechanical but a chemical one. If the weakening were due to the escape of the peroxide from the water, some plan would have been hit upon long ago to stop it. The weakening is due to the conversion of two molecules of the peroxide into two molecules of water and one mole-



cule of oxygen. In no known way can this conversion be arrested. Manufacturers use a little acid in their preparations, believing that this retards the change. Sulphuric, hydrochloric and boric acids are generally employed.

**Dr. W. B. Gambrill**, of Alberton, Md., informs us, in a communication to this office, that he is using dionin tablets "in a cough of several days' standing in which codeine failed to give satisfaction, and they are doing well. The gentleman reported decided improvement to-day. I gave him one tablet ( $\frac{1}{4}$  grn.) every two to three hours."

A few more prescriptions for eczema:

#### **Eczema of Auditory Canal:**

Dilute Phosphoric Acid..... 1 fl. oz.  
Tinct. Iron Chloride..... 4 fl. dr.  
Syrup Lemon ..... 6 fl. oz.

Teaspoonful in wineglass of water after meals.

Carbolic Acid.....10 grn.  
Benzoinated Ointment Zinc Oxide. 4 oz.

Apply locally. Do not use soap or water.

—SCHEPPEGRELL, *Louisville Med. Monthly*.

#### **Eczema Rubra:**

Salicylic Acid.....10 grn.  
Powd. Starch..... 2 dr.  
Petrolatum..... 4 dr.

Use as a paste on the diseased parts and cover with a cloth and light bandage.

—STELWAGON, *Dunglison's Coll. & Clin. Record*.

#### **Chronic Eczema:**

Naphtalin .....3 dr.  
Carbolic Acid.....5 min.  
Vaselin .....3 oz.

Apply every night at bedtime, sleep in gloves, wash with castile soap in the morning and then apply sweet oil.

—RYAN, *Med. Summary*.

#### **Eczema with Crusts:**

Precipitated Sulphur ..... 4 dr.  
Wax..... } of each, 10 dr.  
Hydrated Wool-fat.. }  
Olive Oil..... 5 fl. dr.

Apply three or four times a day.

—*La Settimana medica*.

#### **Infantile Eczema:**

Sodium Bicarbonate }  
Calcined Magnesia. } of each, 2 to 5 grn.  
Beta-naphthol ..... }  
Powdered Nux Vomica..... $\frac{1}{2}$  to  $\frac{1}{6}$  grn.

Give such a powder every day for 10 days along with minute doses of calomel; then discontinue for 10 days and commence again.

—COMBY, *La Méd. mod.*

#### **Sluggish Eczema:**

Green Soap..... }  
Tar..... } of each 3 dr.  
Alcohol..... }

—STELWAGON, *Dunglison's Coll. & Clin. Record*.

#### **Seborrheic Eczema:**

Precipitated Sulphur.....1 dr.  
Hydrated Wool-fat..... } of each 4 dr.  
Vaselin..... }

Apply several times a day.

—*La Settimana medica*.

#### **Simple Eczema:**

Boric Acid.....15 grn.  
Powd. Acacia..... 2 dr.  
Liquid Petrolatum..... 7 $\frac{1}{2}$  dr.  
Water.....15 fl. dr.

Apply locally.

—KNAGGS, *Louisville Med. Monthly*.

#### **Vesicular Eczema:**

Salicylic Acid.....80 grn.  
Glycerin.....80 min.  
Gelatin ..... 4 dr.  
Hot Water ..... 4 fl. dr.

Dissolve by aid of heat and apply several times a day.

—SCHWIMMER, *Wien. med. Presse*.

#### **Publications Received**

THE OPEN-WOUND AFTER-TREATMENT OF CATARACT. By Wendell Reber, M.D., instructor in Eye Diseases in the Philadelphia Polyclinic, and College for Graduates in Medicine, Philadelphia, Pa. Reprinted from *The Philadelphia Polyclinic*.

EMPHYSEMA OF THE EYELIDS FOLLOWING FRACTURE OF THE INNER WALL OF THE ORBIT FROM A FIST BLOW. By Wendell Reber, M.D., Philadelphia, Pa. Reprinted from the *Ophthalmic Record*, November, 1899.

CONGENITAL OPACITY OF THE CORNEA. By Wendell Reber, M.D., Philadelphia, Pa. Reprinted from the *Medical and Surgical Report*, October 2, 1897.

REPORT OF COMMISSION OF MEDICAL OFFICERS DETAILED BY AUTHORITY OF THE PRESIDENT TO INVESTIGATE THE CAUSE OF YELLOW FEVER. By Walter Wyman, M.D., Supervising Surgeon-General U. S. Marine-Hospital Service; Eugene Wasdin, M.D., Surgeon M.H.S., and H. D. Giddings, Passed Ass't. Surgeon M.H.S., Treasury Dept. Document No. 2125, Mar.-Hosp. Service.

THE BUBONIC PLAGUE. By Walter Wyman, M.D., Surgeon-General Marine-Hospital Service, Treasury Dept. Document No. 2165, Mar.-Hosp. Service.

REPORT OF THE HEALTH OFFICER OF THE DISTRICT OF COLUMBIA. Washington, Government Printing Office, 1899.

HEMORRHAGE AND CIRCULATORY DISTURBANCES IN COMPLICATED FRACTURE. By Thos. H. Manley, M.D., New York. Reprinted from *The Medical Standard*, Chicago, May, 1900.

THE MANAGEMENT OF LARGE CONGENITAL EXOPHTHALMOS—INFANTILE. By Thos. Manley, M.D., New York. Reprinted from *Philadelphia Monthly Medical Journal*, December, 1899.

# Book Notices

PERCY FRIEDENBURG, M.D., the ophthalmic surgeon to the Randall's Island and Infant Hospitals, and assistant-surgeon to the N. Y. Eye and Ear Infirmary, is the author of an interesting manual of therapeutics and nursing in eye diseases, which appears under the title of *THE OPHTHALMIC PATIENT*. The opening chapter is devoted to a description of wards for the treatment of eye patients, including ventilation, illumination, furniture, and management. A chapter on hospital routine follows, and the remaining eight chapters are devoted to ophthalmic therapeutics, asepsis, and antisepsis, arrangements for ophthalmic operations, nursing of the different operations, dressings, bandages, post-operative nursing and treatment, etc. The paper and type are excellent, and the illustrations, both half-tones and wood-cuts, are well executed. (New York: The Macmillan Company, 66 Fifth Ave. 312 pp. Price, \$1.50.)

DISASTROUS mistakes are more easily made in connection with eye diseases than in any other branch of medical science, especially by those in general practice whose opportunities of observing eye cases are few and far between. Although primarily intended for students, general practitioners will appreciate *GOLDEN RULES OF OPHTHALMIC PRACTICE*, by Gustavus Hartridge, F.R.C.S., England. This little work belongs to the Golden Rule series, which have proven so successful. (Bristol, England: John Wright & Co., 69 pp. Price, 1 shilling.)

RICHARD H. WHITEHEAD, M.D., professor of anatomy at the University of North Carolina, has recently written a most helpful little text-book, *THE ANATOMY OF THE BRAIN*, illustrated with 41 engravings, contains 96 pages, and is bound in vellum cloth. Medical students will find this a text-book of unusual utility because of the clearness of description and accuracy of illustration. (Philadelphia: The F. A. Davis Company, 1914-16 Cherry street. Price \$1, net.)

*THE CARE OF THE CHILD IN HEALTH*, a neat, well-printed volume of 308 pages, by Nathan Oppenheim, A.B., M.D., is in more ways than one a unique book. Every detail that concerns the welfare, mental or physical, of the child from conception to puberty, is considered in a thorough, wholesome and common-sense way, and withal in an easy and entertaining style, that is refreshing to the jaded reader of modern medical literature. It leads us for a time, from the study of the abnormal to the contemplation of the natural; and it is safe to predict that no one, professional or layman, will read the book without absorbing some new ideas on child hygiene. The chapters on "Clothing" and "Habits" are particularly good

reading, and advocate some reforms which, if urged by the physician and adopted by the parent, would work wonders in the direction of producing healthy, good-tempered children. If freshness of material, careful writing and attractive appearance count in the race for popularity, the book under consideration should be an easy favorite. (New York: The Macmillan Company, 66 Fifth avenue. 12mo., cloth. Price, \$1.25.)

*THE ANNUAL OF ECLECTIC MEDICINE AND SURGERY*: Edited by John V. Stevens, M.D. Vol. viii, embracing the papers and proceedings of the various State Eclectic Medical Societies for the years 1897 and 1898. (Cincinnati: The Scudder Bros. Company. 8vo., cloth, 538 pp. Price, \$2.)

## Publications Received

*BIBLIOGRAPHIA MEDICA (Index Medicus)*: An international monthly bibliographical review, following the plan of the defunct American *Index Medicus*. Editor-in-chief, Marcel Baudouin. Published by the Institut de Biographie, 93, Boulevard Saint-Germain, Paris.

*AN EPHEMERIS OF MATERIA MEDICA, PHARMACY, THERAPEUTICS AND COLLATERAL INFORMATION*. By Edward H. Squibb, M.D., Jr. Read by the author at the sixteenth annual meeting of the New York State Medical Association, October 26, 1899.

*REMARKS ON NEPHRECTOMY*, with a plea for the more certain and earlier diagnosis of conditions requiring it. By Chas. P. Noble, M.D., Surgeon-in-chief, Kensington Hospital for Women, Philadelphia. Reprinted from the *Pennsylvania Medical Journal*, August, 1899.

*REMARKS ON THE INFLUENCE OF TECHNIQUE UPON THE RESULTS OF CLOSURE OF WOUNDS OF THE ABDOMINAL WALL*. By Charles P. Noble, M.D. Reprinted from the *Boston Medical Journal*, March 8, 1900.

*CONSTITUTION, BY-LAWS, HISTORY, FIELD AND SCOPE of the New York Medical Gymnastic and Massage Society*.

*A NEW METHOD OF DIAGNOSIS OF TUBERCULOSIS OF THE KIDNEY*. By Charles P. Noble, M.D., and W. Wayne Babcock, M. D.; and *REMARKS ON EXTRA-UTERINE PREGNANCY*, by Chas. P. Noble, M.D.; both reprinted from the *American Gynecological and Obstetrical Journal*.

*REPORT OF A CASE OF FIBROMA OF THE NECK*. By J. A. Sutcliffe, A.M., M.D., consulting surgeon to St. Vincent's Hospital, consulting surgeon on genito-urinary diseases to the City, Union State Hospitals, etc., Indianapolis, Ind. Reprinted from the *Medical and Surgical Monitor*, April, 1900.

*TYPHOID FEVER AND OUR WATER SUPPLY*. By Edmund W. Holmes, A.B., M.D., demonstrator of anatomy, University of Pennsylvania; surgeon to the Methodist Episcopal Hospital, Philadelphia. Reprinted from the *Pennsylvania Medical Journal*, January, 1900.

# MERCK'S ARCHIVES

OF

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### The World's Resources for Medical Supplies

THERE has, from time to time, been a good deal of speculation concerning what we shall do for fuel when the coal supply of Pennsylvania and other coal-producing regions gives out. No one has stopped to ask what we shall do for medicine when our present resources fail us. This is because we all see that the matter of supply in this class of goods is under our direct control. Few, however, realize the vastness of the opportunities which nature has laid before us or how little we are doing toward seeking the best at our command. It is a common thing for druggists to say that the best is none too good for the sick, but how many of us know on every occasion what the best is or whether it is really at our command when we want it? In the supply of drugs contained in the best stocked establishment of the world the number of articles is but an infinitesimal fraction of the number nature holds in store for us. "Prove all things and hold fast that which is good" is an admonition which the wise doctor keeps in view, but how can he test or try drugs that have not yet been discovered or even suspected to exist. We extol quinine in malaria, morphine in pain, mercury in syphilis, ichthyol in erysipelas,

and aconite in fever. How do we know that there are not remedies awaiting a discoverer that will as far surpass these as these surpass the crude remedies of the South Sea Islanders? Sir Isaac Newton is reported to have once stated that he felt, in all his searches after truth, like a child gathering pebbles by the sea shore. Every once in a while one more beautiful than the last was discovered, while the whole ocean of truth lay all unexplored before him. It is even thus as regards our possible supplies of drugs. All that research has yet given us are the merest, minutest of fractions of the whole. Our chemists and pharmacists have done very little toward the study of our indigenous drugs. We have found out that the most potent of remedies in any given class are more likely to turn up in a tropical than in a temperate region. This of course is not true in all cases, as can be seen in digitalis, aconite and belladonna. It is, however, distinctly seen in Papaver and Cannabis. But whether we look to hot climates or cold ones we discover that the great forests of the earth have not yet been explored nor the great pampas searched for potent drug-producing plants, as they should be. The wilds of Africa, of



South America, of Borneo, of Celebes, of Sumatra, of the Philippine Islands, all contain untold multitudes of plants the hidden virtues of which the scientific seer has not deigned to even look at. The few we know have come to us by mere accident or by the recommendation of savages or missionaries who have tried them. If in the little bit of botanic territory which we have cultivated so much has been discovered, how much more is it fair to assume the million-fold greater territory should on the same proportion contain. Genera and species in vast numbers still remain unknown. Their alkaloids, glucosides, neutral principles, gums, resins, acids, ethers, oils, toxalbumins, and ferments are all mysterious quantities that await exploitation. Who is at work upon them? Where is our new Dragendorff ready to open up the Twentieth Century with a continuation of the splendid work begun by the illustrious Russian? How much systematic work is being prosecuted at present in this magnificent field of research? If we turn to the sea, there too we find unexplored depths and breadths in its unknown flora. Nothing is being done with it and no one seems to think that anything should be done with it other than letting it alone. A few years ago one or more pharmaceutical firms did splendid work in exploiting the tropics for new organic remedies, and from their depths did bring some really valuable contributions. Why have they ceased their labor of love in behalf of humanity? For some reason there is a dark shadow hanging over scientific *materia medica* in all the old fields of work. In synthetic chemistry much is being done, but even this is threatened, as can be seen by any one who carefully notes the attitude of the medical profession toward it. If we carefully scan medical literature for some evidence of interest in the progress of *materia medica* we will find it written all over with "*mene tekel*." It looks almost as if a conspiracy of silence had been evolved among medical journals against this depart-

ment of medical science. Of course it is absurd to assume the possible truthfulness of such a hypothesis as this, for nothing of the kind would for a moment be tolerated by the profession at large. The cause lies deeper, and when found will probably show itself as due to some undeveloped trait of average human nature. If we could question those who have introduced the really new and valuable things of the past forty years they could, if willing, no doubt enlighten us as to the secret of the paucity of encouragement bestowed upon research along the lines we have indicated. Such knowledge can only be obtained experimentally and unless the proper experiments are being performed in order to make such discoveries the medical press cannot supply the same. Work must be done or *materia medica* and therapeutics must languish. The surface only has been searched and all the stray facts that lie on or near the surface are in our possession. To make discoveries of permanent value now requires trained men skilled in chemistry, botany and physiology. What encouragement are we holding forth to such men that is sufficiently strong to draw them from other lines of business into this? To practice medicine, prosecute such studies and do such work, all at the same time is absolutely impossible. To do such work for mere glory or from a sense of duty is to starve and die. Men cannot be sent into the wilds of South America, as Dr. Rusby was sent there, unless provision is made for their maintenance. If they return with articles of possible value the testing of these, their manufacture, their distribution and the dissemination of knowledge concerning them cannot be accomplished by a mere wish. Can we hope to do anything in such work unless we are willing to fully compensate the exploiters of this branch of science in a most liberal manner? Every effort at increasing the cost of such exploitation and every effort at discouraging remuneration is a stab at medical science.

# Cannabis Indica

A STUDY OF ITS PHYSIOLOGIC ACTION, TOXIC EFFECTS AND THERAPEUTIC INDICATIONS

By Dr. H. EDWIN LEWIS, Burlington, Vt.

Attending Surgeon Fanny Allen Hospital; Attending Physician Home for Friendless Women.

RECENT multiplication of new remedies has relegated many old ones to the background of modern therapeutics. One of the older drugs which has been almost forsaken because of the foregoing, yet one which has every right to a place in the armamentarium of the general practitioner, is cannabis indica or indian hemp. Considerable experience with this drug in hospital and private practice has thoroughly convinced the writer of its efficacy in many abnormal conditions and diseases. Therefore the object of this article will be to report the results of certain experiments to determine its physiologic action, and record personal observations on its clinical use.

In the first place, cannabis indica is composed of a resin which has been called cannabin, and a volatile oil. To each of these the physiologic action of indian hemp has been attributed, but while it is highly probable that both possess certain properties in common and contribute to the action of the composite drug, the resin is pretty surely the part which *at least contains* the active principle.

The action of indian hemp, like other drugs, varies considerably, such variation depending, of course, on the amount of the dose and the idiosyncrasy of the person taking it. In small doses it is stimulating in its effects, slightly increasing the action of the heart and producing a mild sensation of exhilaration. Fatigue of the muscular system is relieved, and its administration increases the capacity for work.

On the nervous system it is first stimulating, but this effect is soon succeeded by sedation and slight drowsiness. Nervousness is allayed and a peaceful feeling of mental repose is experienced. On the respiration it has very little if any effect.

Pain is relieved by its secondary depressing influence on the nervous system, both the conducting and receiving apparatus be-

ing thus affected. Larger doses produce cutaneous anesthesia by still greater degrees of nerve depression, and the soporific effect of cannabis indica is unquestionably due to a like influence on the higher nerve centres, augmented by contraction of the cerebral vessels.

On involuntary muscular tissue it has a marked action, a selective action on the uterine muscle being particularly evident. While it is probably true, as most writers maintain, that indian hemp has not the power of inaugurating muscular contraction, it certainly does have the power of increasing contractions once begun, and I know that the feeblest contractile effort of the uterine muscle is enough for the drug to exert its most potent influence.

As an aphrodisiac cannabis indica has been overestimated, though it undoubtedly does have some value in certain forms of impotence which will be spoken of later.

In large doses the effect of indian hemp is very startling and characteristic. After taking the drug a mild form of intoxication usually comes on within a short time, although occasionally the first symptom may be delayed to even two or more hours. A feeling of joyful anticipation of some unknown yet great pleasure is experienced, and there seems to be an end of all trouble and care. Without taking cognizance of the fact, past events and details grow very unimportant and the most pressing obligations are forgotten. The mind seems wholly taken up with the thoughts of the passing moment. Very frequently a great inexplicable sense of relief is felt, the sensation many times being identical with that experienced by one who suddenly awakes from a horrible dream to the feeling of gratitude which is always felt at its unreality.

The senses are rendered unusually

acute, particularly that of hearing. The simplest and most insignificant sounds are greatly magnified, but they do not cause annoyance, nor is the resulting effect unpleasant. Occasionally all sounds give the impression of coming from a distance. Music gives more pleasure, though the power of discriminating quality is not increased, even the mere playing of the scales on a piano holding the pleased and enraptured attention of the person under the influence of the indian hemp. Little details of a pleasing nature become delightful surprises, and the whole attitude is that of one laboring to suppress some great joy. Apprehension is entirely absent.

There is perfect possession of the reasoning faculty and no sign of muscular incoordination. The person evinces no incongruity of manner or speech, nor is there any symptom to arouse the suspicion of mental aberration.

In a short time, varying with the amount ingested and the individual, the primary stage of exhilaration is succeeded by that of delusions. This stage, which is very amusing to the partaker of the drug, is characterized by the most startling and oftentimes ludicrous illusions and delusions. The mentality at first is as acute as in the exhilaration stage, but there seems to be marked perversion of the perceptive faculty. Everything is distorted and the proper relations of space are out of all proportion. Short distances become infinitely far, and surrounding objects are magnified to enormous dimensions. Great amusement is felt in this stage at the incongruous appearance of things generally, but while remarking the ludicrous character of his delusions, the patient may still seem to be perfectly aware of the fact that they are only freaks of the imagination. Another peculiar feature of the delusional stage is that the conception of time is completely lost. Minutes lengthen out into hours, and any small exertion like crossing a street or going up a flight of stairs seems to take ages to consummate. No excitement is shown, and there is perfect muscular control, the only noticeable symptom being the inordinate risibility, which is attributed by the patient

to the ridiculous character of his delusions. Immediately following this stage and almost a part of it, so sudden is the onset, is the stage of hallucinations. One seems instantly torn from his body and cast out into space. From afar he sees and hears his physical self and observes the various details of material, dress and manner. To the individual under the influence of cannabis indica it is the thinking part of his being, the ego, that is *ex corpore* and doing the observing. Yet in talking to those around him his answers are perfectly rational and coherent. Occasionally his manner may be abstracted and apprehensive, but all unknown to those who are conversing with him, he is undergoing a most wonderful experience. He hears the remarks addressed to his physical body and seems to hear the physical remnant of what was himself making all the replies. From aside he sees himself get up and go to the table, partake of food possibly, and all the time that part of him which is in the background, watching the proceedings, is unconscious of all physical sensations.

This hallucination of dualism is the strangest and at once the most impressing of all the mental phenomena accompanying the physiological effects of indian hemp. It is very constant, and it is rare for one under the toxic influence of the drug to fail to experience this particular sense of being separated or detached from himself. I have often thought that Robert Louis Stevenson's famous story, "Dr. Jekyll and Mr. Hyde," might possibly have owed its origin to some familiarity of the author with the peculiar dualism produced by the drug or some of its oriental preparations.

Another characteristic of this stage is the great anxiety felt, a very frequent cause of apprehension being the peculiar sense of double personality. One is torn with fears of never being able to return to or re-enter his body again, and the thought that after all perhaps he is dead fills him with terrible despair. The most dreadful apprehension for what may yet happen adds its influence to his depression, and an almost uncontrollable desire to cry out and cast off the fearful spell of surrounding gloom, seizes him.



The stage which now succeeds is usually that of drowsiness, rapidly passing into a profound sleep or even stupor. In exceptional cases a stage of delirium immediately follows the hallucinations, its occurrence depending largely on the person's temperament and disposition. If an individual is ordinarily very excitable, possessed of an irritable nature and given to bursts of ungovernable temper, he is pretty sure to pass through the stage of delirium. In it all one's baser nature is rampant, the instincts seem to be criminal, and there is marked moral perversity. Self-control is absent, there is a tendency to destructive violence, and the person becomes exceedingly dangerous, for there is no limitation to his brutal tendencies. Fortunately, sleep or unconsciousness soon ends the delirium. In a great many cases, in fact the majority, the stage of delirium is wholly absent and the hallucinations are immediately followed by the stage of somnolence. This condition, which may be so profound as to be cataleptic, usually lasts from eight to twelve hours.

I have been able to observe the effects of large doses of cannabis indica in quite a few instances, and though division of the resulting phases of the mental condition is quite arbitrary, the various stages and their order of succession are fairly constant. I have been much impressed with the comparative similarity existing between the various stages and phenomena of the hypnotic state and those induced by toxic doses of indian hemp. The greatest point of similarity, however, lies in the fact that while one is under the influence of cannabis indica there is very strong susceptibility to external suggestion. For illustration, the sight of someone eating invariably suggests great hunger, and to see one drinking induces unusual and sudden thirst. In all but the stage of delirium the subject is exceedingly tractable and controllable, the readiness with which advice and suggestions are followed, if not quite, at least approaching very near to perfect submission. The will is not destroyed, but there is a passivity of the volition which permits the directing of one's acts to the same more

or less complete extent of hypnotized subjects.

For instance, one of my cases, Mr. D., was told to arise, cross the room and rap on the wall three times. He immediately did so, and on his return to the chair which he had been occupying, when asked why he did it, answered "Because you told me to."

"Was it not a foolish thing to do?"

"I don't know. I never thought what I was doing."

A few minutes later, I casually remarked that he could take his shoe off if it hurt him. He immediately stooped over, unlaced his shoe and removed it.

"Does your foot pain you?" I asked.

"Why, no; I don't know as it does," he answered."

"Why did you remove your shoe, then?"

"I don't know. My foot felt kind of queer, and I just thought I would take the shoe off."

Mr. A. C. was another case. He was not so open to suggestion as Mr. D., but he was very tractable. The most whimsical remarks met with no surprise or remonstrance, and he seemed to tacitly agree with everything said to him. During his somnolent stage, after trying and failing to arouse him, I told him a highly improbable story, and though he was apparently perfectly unconscious, after awaking he repeated the whole story with remarkable accuracy. He claimed that he had dreamed it.

I found that the usual tendency was for everything transpiring under the influence of hemp to be forgotten on awaking. I was able, however, to leave a very vivid remembrance of every delusion and hallucination by impressively telling the subject that he *must* remember everything the next day. His agreement to do so invariably resulted in his remembering every detail.

My conclusions are based on experiments on seven subjects, six males and one female. With two exceptions they were all students, and all were possessed of good intellects and sound bodies. The two first cases recollected nothing definitely when they recovered from the drug because I

failed to suggest that they should remember what had transpired. To the third case I suggested that he should remember as an experiment, not having the slightest confidence that there would be any such result, but to my surprise he retained a most vivid recollection of all that he had experienced. After that the routine suggestion was sufficient to preserve fairly strong mental pictures of all that occurred while under the influence of the drug. Many interesting experiments along the line of suggestion were performed, but these do not properly belong to this article. I proved conclusively, however, that the person under the effects of cannabis indica is remarkably open to suggestion and that there exists a marked similarity to the hypnotic state.

In every instance I used the solid extract, varying the quantity in different cases from eight to twenty grains. From my observations I am inclined to doubt the power of cannabis indica to produce a fatal result when administered *per os*. It is my impression that there is a limit to the absorption of the drug, for with one or two minor exceptions the full effects were as completely obtained in my cases with ten grains as with twenty. Unquestionably, then, only a portion of the drug is acted upon by the internal secretions and the remainder is probably passed off by the intestinal tract unchanged. The urinary secretion is occasionally increased, but there is no change in its character, nor is there any indication to prove that the kidneys take part in the elimination of the drug.

In a series of experiments on animals death resulted in only one instance. In several rabbits I had injected ten minims of the fluid extract. Within a few minutes all seemed to be stricken with a great and unusual fear, and they could not be induced to move around at all in the pen in which they were kept. In less than half an hour they were all rendered unconscious, convulsions soon attacked two of them, and in about an hour the largest rabbit had a very severe convulsion and died suddenly. The heart-beat was felt several times after breathing stopped. The rest all recovered

in about eight hours, though they were stupid and acted strangely for several days. Examination of the dead rabbit showed that death had resulted from paralysis of respiration. Aside from a comparatively anemic condition of the brain, no cerebral or other changes were noticeable macroscopically. Unfortunately I had no means at hand for making a microscopic examination of the brain, and, had I done so, I very probably would have been unable to determine any actual changes. But I thoroughly believe that cannabis indica has some special and direct action on the cerebral cells or neuronie elements whereby the resulting mental phenomena so characteristic of the drug are produced. I also feel certain that one with the requisite amount of skill and apparatus could find changes, possibly nutritional in character, which would be very apparent.

In regard to the counteraction of the poisonous effects of indian hemp, I am obliged to say that I have not as yet found any drug that acts entirely satisfactorily. Hyoscin hydrobromate administered hypodermically during the stage of hallucinations or that of delirium is the best and nearest thing to an antidote I have used thus far. During the somnolent stage, when the respiration and heart become embarrassed, as they sometimes do, hypodermic injections of strychnine and nitroglycerin are effective, as also is a rectal enema of strong coffee and brandy (two ounces of each).

The uses of cannabis indica are manifold, but with a few exceptions its efficiency is limited to those diseases directly traceable to nervous derangement. Pain not due to distinct pathologic lesions forms the chief indication for its administration, and relief is usually obtained promptly. In migraine, hemicrania, the various neuralgias and the headaches due to eye-strain, cannabis indica may be used with marked success. For the pain of multiple neuritis and locomotor ataxia it is one of the best of anodynes, and to relieve the chest pains of phthisis it is often very serviceable. As a hypnotic I do not think that cannabis indica has a very great field of usefulness, and, though I

have used it successfully to combat the sleeplessness of neurasthenic patients, I know that there are other better and surer sleep-producing drugs.

To relieve the various neuroses accompanying pregnancy and the climacteric, I have found it one of the most efficient and satisfactory drugs, while to allay the particularly violent nerve storms of the artificial menopause, it is without an equal.

In certain malarial conditions accompanied with severe headache and nervous symptoms, cannabis indica is a very valuable adjuvant to quinine, successfully counteracting the early tendency of the latter drug to increase nerve irritation. Dysmenorrhea, not due to anatomical or inflammatory causes, is, in my opinion, one of the principal indications for indian hemp. No other drug acts so promptly and with fewer after effects.

From my own personal observation, I am convinced that cannabis indica does exert a powerful influence on muscular contraction, particularly of the uterus. It may not, as Bartholow says, have the power of initiating uterine contraction, but I have demonstrated time and time again to my own satisfaction that the presence of the merest contractile effort is enough to permit its fullest effects. It is therefore of some service in uterine hemorrhage, but since its action is much slower than that of ergot, it is not as useful in those sudden hemorrhages great enough to require immediate check. I have noticed, however, that ergot is considerably quicker and more prolonged in its action when combined with cannabis indica.

The drug is very useful in profuse menstruation, decreasing the flow nicely without completely arresting it, as ergot very frequently and improperly does.

To cannabis indica great aphrodisiac properties have been ascribed, and consequently it has held high reputation in the treatment of impotence. In my hands this particular usefulness of the drug has been shown to be over-estimated. Impotence, more or less complete, which is due to urethral hyperesthesia is certainly benefited by the sedative or analgesic action of in-

dian hemp. Since inability of the male to successfully copulate is quite frequently due to this one cause, it is perhaps not strange that the drug should have won such high favor in the treatment of impotent conditions generally. Another form of impotence, that which is dependent on a lack of muscular tone in the vascular supply of the penis, may be sometimes benefited by cannabis indica. But the benefit obtained is transitory, and in order to effect more permanent relief it should be combined with ergot. Each drug seems to enhance the virtue of the other, and I have found their combination very serviceable in this form of functional impotence.

In several cases of diabetes mellitus I have observed evident improvement from the use of indian hemp, its continued administration producing marked amelioration of all symptoms of the disease without checking the secretions or causing constipation. To relieve the intolerable itching and burning of all neuroses of the skin it is also very useful.

The preparation I invariably use is the assayed solid extract. The dose is one-quarter to one grain. I use a quarter-grain tablet triturate and repeat the dose every one, two or three hours, as indications warrant.

**Phosphoric Acid** was tried in a case of *brass poisoning* by Dr. William Murray,<sup>1</sup> who reports complete failure to relieve the manifestations of this poison by the administration of potassium iodide. While searching for a more satisfactory remedy, the fact that sulphate of copper is an antidote for phosphorus poisoning induced him to try the latter, which he gave in pills containing  $\frac{3}{16}$  grn. each, three times daily. The results were highly gratifying, and became even more so when he substituted dilute phosphoric acid in 15 min. doses. Under this treatment improvement begins almost immediately, and, as a rule, patients are practically well at the end of three weeks, even though they continue their work in the meantime. As a prophylactic measure, all those exposed to brass poisoning should drink water acidulated with phosphoric acid.

<sup>1</sup>*Brit. Med. Jour.*, 2: 57, p. 1534.



# A Therapeutic Study of Iodine

By A. G. MINSHALL, M.D., Northampton, Mass.

## PART II.

CERTAIN evidence can be obtained in the allied conditions known as goitrous affections: here we have various diseased processes affecting the thyroid gland so that its peculiar tissue becomes more or less functionless, sometimes leading to a condition of "myxedema," and almost always to an accumulation of effete products in the blood. These diseases have long been noticed as liable to occur in certain localities, notably deep inland valleys and regions remote from the sea-coast. No definite cause has been demonstrated. The recent investigations on the thyroid active principles lead us to the conclusion that the ultimate factor in the causation of this group of diseases is the absence of iodine in the air and water of these same localities. Let us consider the evidence. Cases of goiter, Derbyshire neck, cretinism and the like, practically never are known to occur in regions on the sea-coast or where the iodine-laden sea air is present or the drinking water contains iodides. Baumann has demonstrated that at Freiburg, where goiter is common, even normal thyroids contain less iodine than at Hamburg, a sea-port town, where goiter is practically unknown. The administration of iodine in any form, and especially in the organic compound, leads to marked reduction of the hypertrophied gland where present, and a restoration to a comparatively normal condition, if continued for some time.

A review of the action of the element on the organic structures leads us to the practical details of its exhibition and employment in morbid conditions; these varying over a large range, according to the particular property we wish to utilize. Externally we make use more especially of its marked antiseptic action and we can choose from a large number of synthetic products where we desire a slow liberation of the element in a nascent condition; we also sometimes find it convenient to utilize

its irritative quality, prescribing it as a counter-irritant in cases of chronic inflammations of subcutaneous organs and as a direct irritant by injection of strong solutions into cysts, and other abnormal cavities. The most generally useful preparation for these purposes is the alcoholic tincture, although there are stronger solutions under the name of the liniment and liquor; in the use of these applications little if any of the iodine is absorbed into the system; this, however, may be brought about to a greater degree if the surface painted be hermetically covered, or if the element be combined with an animal fat or oil, and rubbed into the skin. The iodide of ethyl, either applied to the skin or used as an inhalation, will rapidly introduce the element into the blood, as will the inhalation of the vapor of the simple iodine or a nebulization of a solution in oils or glycerin and water. A recently introduced combination of the drug with the oily base vasogen (oxygenated vaselin) appears to become rapidly absorbed by imunction with a minimum of irritant effect, and may also be administered internally with the same advantages.

In utilizing the antiseptic properties of the element in lesions of the tissues, it is least irritating and most active when produced in a nascent condition by slow decomposition of the synthetic compounds, of which iodoform is a prominent example; the liberation of iodine taking place when the medicament is in contact with the body fluids. These interesting products of chemical ingenuity are quite numerous, and new ones constantly appear which claim to be improvements on those issued before. The ideal specimen should fulfill the following requirements: It should be in the form of a light, inodorous, fine powder, preferably non-crystalline, or at least micro-crystalline enough to avoid mechanical irritation; it should be but slightly sol-

uble in watery fluids, so that it is not easily dissolved and washed away by secretions; not easily absorbed, so that quantities of iodine are not introduced into the system; and, finally, it must part with the element slowly enough to have a prolonged action, and freely enough to rapidly destroy any bacteria with which it may come in contact. Iodoform was the advance product of this type, and is probably still more largely used than any other in spite of its disagreeable odor, and occasional toxic effect. A short consideration of the group may be of interest.

*Iodoform* contains 96 per cent. of iodine; its appearance is familiar to all, but lately there has been introduced what is claimed to be an isomeric form, void of odor, but containing an equal amount of the element and its other characteristics. Experience alone will decide its degree of usefulness.

*Iodoformin* contains a molecule of iodoform, making 75 per cent. of the compound; it is a non-irritating, fine, white powder without odor.

*Idol* contains 88.9 per cent. of iodine, slight odor, a micro-crystalline yellow powder.

*Aristol*, a brownish powder without odor, containing 45.8 per cent. of iodine.

*Europhen*, an orange powder with slight odor, containing 28 per cent. of iodine; a most efficient substitute for iodoform.

*Losophan*, a grey crystalline powder, containing 80 per cent. of iodine. Apt to cause irritation.

*Soziodol* occurs in combination with sodium, potassium and other metals, contains 54 per cent. of iodine, and is very efficient and non-irritating, while the different salts enable us to make varied choice as to solubility, degree of stimulation, and dose when administered internally.

*Airol*, a grey powder, no odor, containing about 40 per cent. of iodine, has given rise to toxic effects similar to iodoform.

*Loretin*, very similar to iodoform, but odorless and less active.

*Nosophen*, yellow powder, odorless, containing about 60 per cent., has a sodium salt

*antinosin*, soluble in water, and a bismuth one, *eudorinc*, very insoluble.

*Iodoformogen*, an albuminate of iodoform, an odorless brown powder which liberates iodoform in contact with wound surfaces.

There are many other similar iodine compounds, in which, however, its action is reinforced by another base such as one of the phenylic series, but the above list comprises the chief of those which depend upon the action of the liberated element.

In the local application of iodine to the mucous membranes it becomes still more necessary to minimize the irritant effect and to guard against the excessive absorption of the element into the system; the synthetic powders may be used, but it is often advisable to dilute them with some bland substance such as talcum, or stearate of zinc. For injection into cavities, iodoform and other insoluble compounds may be made into an emulsion with glycerin, care being taken, however, not to introduce more than is absolutely necessary, as toxic effects have been often produced in this manner. If we desire to use the pure element on the mucous surfaces, its irritating effects may be minimized by combining it in glycerin or some light oil, such as liquid vaselin, either in simple solution or the more elegant form of iodo-vasogen. Lugol's solution with potassium iodide and glycerin is a useful form, and our own experience has been very favorable with a solution of the pure drug in purified liquid vaselin, applied in the form of a nebulization or spray to the respiratory tract; in this delicate region we have found also of admirable service the salts of soziodol, which combine in the highest degree the desirable features of prolonged action, non-irritation and degrees of solubility suited to all requirements.

We now have to consider the introduction of the element into the digestive tract, either for the purpose of promoting a local action on its walls and contents or for the purpose of absorption into the circulation. If the former effect is desired, it is necessary to administer a form that is practically insoluble in watery fluids, non-absorbable, and yet capable of parting slowly with definite

quantities of the iodine. There are several preparations which fulfill these indications—the organic compound of iodine and starch, a blue-black powder containing 2 per cent. of the element, acts as a fairly efficient intestinal antiseptic, and is not absorbed, so that its action is prolonged throughout the whole alimentary canal. Other preparations are bismuth oxyiodide, and eudoxine, the bismuth salt of nosophen. These will promote intestinal antisepsis by parting with their iodine slowly, and are quite insoluble, so that their action is almost entirely local.

We now come to a most important section of our subject—the consideration of the best way to introduce the element into the circulation in order to obtain its valuable “alterative” effect upon the protoplasmic structures; and we can formulate two essential requirements necessary to success. Firstly, we must eliminate as far as possible its naturally irritant quality, and, secondly, we must ensure rapid absorption from the stomach. We find that a more or less irritant drug will often be tolerated by the stomach when full of food, and for this reason many of the iodine preparations have been usually given after meals. However, the fact that a strong affinity exists between free starch and the element, leading to the formation of a firmly united chemical compound which is almost inert, makes it appear highly probable that little of the iodine is absorbed when mixed with foodstuffs, and we either lose the greater part of the therapeutic effect desired, or else are compelled to give much larger doses than are necessary or desirable. We therefore deduce the axiom that iodine should, if possible, be administered on an empty stomach, preferably half an hour before meals. In order to do this without bad effects we must often resort to much ingenuity. A healthy, non-sensitive stomach will often accept favorably the free element in the form of the tincture, if it be largely diluted with water, or in a glycerin vehicle, such as Lugol's solution combined with syrup. The iodides in a state of purity vary in degree of causticity, according to the base, rubidium, strontium, sodium,

and lastly potassium, representing the order from the least to the greatest amount. If they are chosen they should be dissolved in water or milk and largely diluted. Very many stomachs, however, are irritated by the above preparations in any form, and in these cases we have fortunately several improved products of pharmaceutical science. We have found a well-made solution of hydriodic acid in syrup of great value, although the precaution must be taken to reject specimens which present the brownish coloration of released iodine, and the dose should in any case be diluted with plenty of water before use. A promising claimant for our favorable opinion is a recently introduced preparation called iodipin, which is stated to be an actual reduction product of iodine and the oil of sesame. It is a yellowish oil, containing 10 per cent. of the element, and appears to be without any irritative effect, while it is freely and rapidly absorbed into the circulation. A salt which we have found useful, though perhaps slightly more irritating than the two former products, is the iodide of calcium. This contains two atoms of iodine to the molecule, as against the one of the other iodides; hence it is likely to decompose on the slightest provocation and part with the element rapidly. A well-made tablet, however, kept dry and in the dark, seems to be quite satisfactory. The advantages which may be claimed for this preparation are: The small dose necessary to produce the desired effect, the very rapid liberation and absorption of the element in situ, and the freedom from marked irritative effect when given with plenty of water. A number of other iodine combinations have been administered in which the specific effect is joined to that of some other element or drug. These do not require any notice in this treatise.

Some of the salts of iodic acid, iodates, have been introduced into pharmacy, but they do not appear to have any particular quality to compensate sufficiently for their irritant effect. Lastly, in the conditions which appear to be benefited only by the organic forms of the element, we may administer the powdered thyroid gland, but



more scientifically the definite compounds iodothyryne, iodoglobulin, or a mixture of them called thyroglandin.

As has been stated above, in certain gross derangements of the process of metabolism, the tissues seem unable to make use of the inorganic forms of the element, but yield to these products of physiological chemistry. The discovery of these facts adds a fresh interest to the therapeutics of this substance and opens up several new important avenues to research, as to the exact nature of the chemical process which iodine undergoes in the body. We have heard the expression, "When in doubt, give iodide of potassium." This advice is no doubt typical of the empirical manner in which the drug has often been exhibited, and possibly receives some justification from the great number of conditions which are susceptible to its influence; but we submit that, if carefully studied, the action of iodine is more definite and limited than usually supposed and that the physician who employs it in no haphazard manner, but with a distinct idea of the pathological process which he is attempting to relieve, and a knowledge of the probable manner in which the drug brings about relief, will

have far more abundant success than the empiric. Let us all constantly strive to achieve professional success by our scientific knowledge. This feature alone will preserve the practice of medicine from degeneration, and enable the physician to find an interest in his lifework which is beyond that of a mere tradesman.

The object of this treatise is to briefly demonstrate how a drug, which has perhaps been more carelessly used than any other, has proved itself worthy of confidence from the scientific and theoretical side long after it had been "ignorantly worshipped." We have not attempted to define the diseases or even symptoms in which it will be found of service, believing that a knowledge of its therapeutic action will be a sufficient guide in that respect, and we believe that the progress of scientific therapeutics should be more in the direction of a deeper understanding of the action of the many substances used at present empirically, and less towards shallow experimentation with every new product of the much-advertising commercial chemist. While welcoming any real improvements, let us not lose our interest in the well tested, older preparations.

P.

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[Written for MERCK'S ARCHIVES]

## The Value of Ergot to the General Practitioner and Gynecologist

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**E**RGOT is more than the servant of the obstetrician. The circular muscular fibers of the non-gravid uterus and blood vessels are susceptible to the use of ergot. Some of the reasons for this statement will be given in this paper. In general practice its use is indispensable and the gynecologist must use it to obtain the highest success; and though he loves his instruments, he must use both, in certain cases. If abortion is followed by a late and passive hemorrhage it may be due to sub-involution or edema of the mucous

membrane. 'It is a condition that entitles the sufferer to the active aid of the physician. Here the attendant may do much with ergot even if for any reason he cannot assist it by surgery. It will reduce the volume of the uterus and favor absorption of adventitious interstitial deposits, and by constant use will by pressure relieve oozing from open capillaries and redundant granulations of the mucous membrane. No other medicine succeeds so often and so permanently.

The physician with ergot can get on bet-

ter without the surgeon than the surgeon without the physician and his medication; if only one is accessible, the drug is better than the curette. Few cases of this kind will fail to recover under persistent use of ergot.

The contractile power of the drug would suggest its use in cases of fibroid tumors, whether intra-uterine or intra-mural, and in a lesser degree for extra-uterine tumors of this kind. Experience has shown that the results in these cases are all that theory demands and no other medicine is of much value.

We will not forget electricity and its effects when used alone, neither will we insist that they shall never be used together, but it is of the exceeding value of the medicine that we wish to speak; anything that will do effective work and avoid even for a few months the dire necessity of enucleation, excision, or extirpation is desirable. Indeed, persistent use of a remedy will often save from some of the graver forms of disease. Surgery should not always be at the front, beautiful, beneficent and certain as it is to cure in many cases. How does the drug benefit? Simply by compression of bleeding vessels by its chronic contractile power and by favoring absorption. Sometimes it strangulates and causes decay of the substance of the tumor; this will end well if nature can gratify her instinct and push the débris into an open cavity rather than a closed one. Extrusion, followed by expulsion and cure, may result. But absorption may occur in small tumors of this type. At least this is my experience in some cases. Possibly what seemed a fibroid may have been something else. The intra-mural tumor of small size is the only one for which I am ready to vouch. In these cases there was a growth within the walls of the cervix in one case and the others were in the body of the uterus. In two there was hemorrhage and ergot was given in large and long-continued doses. The bleeding stopped, and as the tumors seemed less in volume, the treatment was continued and they disappeared. This is a possible but not probable result in most cases.

The larger fibroids will never disappear by pressure, although there may be a reduction of volume. The result is worth all the trouble, for hemorrhage is usually under control for a certain length of time, and sometimes permanently. But to gain months and years by means of medicine is often better than a resort to the knife.

In other tumors connected with the womb and its appendages it is of little use, since they are of such a nature that they contain no tissue on which ergot can exert its specific action, as for instance in ovarian tumors. It would be worth while to try the effect of ergot in cutting off blood from the vessels that supply the feeding vessels in ovarian tumors and so retarding their growth. In cancer and other malignant growths of the uterus or adnexa no uniform pressure of the uterine muscle can be made under the use of the drug, while the density of the malignant tissue through which the supplying vessels pass would not allow of the peculiar action of the drug to contract the walls of those vessels. The gelatiniform polypus bleeds in spite of ergot because the supplying vessels are without firmness of walls; they are almost without muscular fibers; of low vitality and not amenable to medication except powerful astringents or caustics. It is difficult to see how ergot could do much good in case of a polypus unless it were wholly within the womb; in that case perhaps strangulation or relief by expulsion might be possible; at any rate, pressure would be of temporary use in stopping a dangerous hemorrhage. But in most of these cases the surgeon can do better work and secure speedier results. Possibly it may have some power to cut off the blood supply before it reaches these growths.

In Bright's disease the kidneys need toning up. Their task is to excrete freely and they are loaded with broken down material and urates; they are distended and have little power of contraction to expel their contents. Here ergot finds a most useful place. After long trial in many cases I have come to regard it as indispensable in treating acute and chronic interstitial and parenchymatous nephritis.

Of course digitalis and iron are among the old and needed remedies. But whatever else is used ergot is needed throughout the treatment. Under its use albumin at first may be excreted more freely and the urates, casts and pus may be greatly increased, but in two or three days all the morbid products will grow less and comparative health be re-established. This disease is often curable when not too far advanced, but never by a routine treatment, ergot being perhaps the most constant factor in medication. To succeed, doses should be large and constant.

Ergot is useful in diabetes mellitus and insipidus, when used with codeine or dionin in preference to morphine. These remedies are synergists in the work of giving comfort and prolonging life, but Carlsbad, Bethesda and other mineral waters are not to be forgotten.

In cases of congestion of the brain ergot is often employed either alone or with the bromides, hoping by its peculiar virtues to empty the engorged vessels. The vessels of the encephalon and its membranes are within the bony cranium and one would think that their walls could not readily change in caliber, in certain localities where vessels are imbedded in bony channels, and yet congestion or inflammation implies a change by enlargement. The drug certainly has some value, but it is often used as a routine habit. Bromide perhaps is stronger than ergot, and by its restoration of equilibrium and general sedative action it finally restores equality of circulation. Ergot helps by slowing the excited heart and also by its contractile power. In tuberculous trouble of the brain there would be no possible permanent aid in its use. It can only relieve, not prevent, the growth of brain tumors. In certain forms of tumors it may be successfully employed with iodide of potassium, to assist the action of the iodide in absorbing the tumor. There are many cases of this kind on record, but many are mere coincidences.

Of its value in epistaxis let every one judge for himself. Many think it efficient. Where the case is a critical one I

would give the patient the drug for the sake of a possible good to him and for the satisfaction of his friends. There is a feeling that something is being done, but meantime I would not forget certain little mechanical devices, nor leave my plugs and Bellocq's canula at home, for epistaxis is sometimes dangerous and always a source of anxiety.

In case of hemoptysis in lung troubles, in which loss of blood is a thing to be dreaded, as there is loss of strength, out of proportion to the amount of blood lost, it is of great use, since it is very successful in checking hemorrhage. Here nitroglycerine is also of much value and should not be forgotten. Loss of blood is very common in phthisis and is grave more because of its depressing effect on the courage of the patient than from any inherent danger. The steady use of ergot will save a large proportion of patients from oft-repeated loss of blood. It may be used in combination with gallic acid in any case where hemorrhage of any kind, in any organ or region, is frequently occurring. Ergot should always be on hand for these emergencies.

In the hemorrhage of typhoid fever, always dangerous and alarming, ergot proves its potency. It should be given in full dram doses repeated until the bleeding is under control. It has a better effect if used with oil of turpentine in five-drop doses. It may be put up in syrup of wild cherry. The result is not a true chemical union and the mixture must be shaken before use. It may also be used in alternate doses, one dram of fluid extract of ergot followed in a short time by five to fifteen drops of turpentine.

The value of ergot in dysentery is beyond doubt. It would be a safe thing to try with alternate doses of ipecac. It will also benefit by preventing a repetition of ecchymosis in purpura. It is far more effective in such cases if used in connection with iron. In the hemorrhage of scurvy it is apparently of little use unless fresh vegetables or juices can be had in connection with its use. In the diarrheas, where much blood is coming, it is of some



value, but here lead and opium may be superior.

With regard to the nature and uses of ergot much is known and much suspected. Its true place in medicine will not be settled until suggestion and theory have been proved or disproved by experiment and proper therapeutic trial. Theory must precede most discoveries and all valuable facts which are to be established by research. The chemist has much yet to do in settling its value. The practical man would like to know just why occasionally an hour-glass contraction comes and why the constriction is always at or near the same part of the uterine body.

If uterine spasm occurs why may not veins and arteries be contracted at certain points instead of along their whole extent. This thought was hinted at in a former article in speaking of the effect of ergot on the brain. May not some of its uncertain reputation be due to its power to contract at certain points spasmodically, so giving rise to results which are totally unexpected?

But theory leads to the truth if the wayfarer only leans on the oaken staff of common sense and physical research. That ergot may cut both ways is no reason for fearing it. The double-edged catlin is not dangerous in the hands of a surgeon. It is only necessary for the physician to know the dangers of ergot; he can then use it freely and meet complications as they arise. No other medicine will quite fill its place; it is unique and perhaps dangerous, but like steam and electricity, may be kept in harness and made to do work impossible to a less potent remedy.

### Chronic Cystitis

IN a paper with the above title, Dr. J. H. Marsh,<sup>1</sup> of Fayetteville, N. C., defines this affection as an inordinate secretion of white, glairy mucus essentially dependent on a chronic inflammation of the lining membrane of the bladder. It is analogous in its character to gleet, leucorrhea and kindred affections, and is merely a symptom of a more serious disease. It is most common in elderly subjects and is

nearly always due to some obstacle to the evacuation of the urine, as stricture of the urethra, vesical calculus, enlarged prostate gland, paralysis of the bladder, sepsis, etc. It is a constant attendant upon sacculation, ulceration, hypertrophy and morbid growth of the organ. Once established it is easily aggravated or reinduced by exposure to cold, excesses in diet, irritating injections, diuretics, over-distension of the bladder, neuralgia, retrocession of gout, repulsion of cutaneous eruptions, local injury, and diseases of the adjoining parts; as the anus, rectum, vagina and uterus.

The disease generally comes on in a slow, gradual and insidious manner. The inflammation which accompanies it, and which is always the immediate cause of the peculiar discharge, is of a chronic character. The characteristic symptoms are an inordinate secretion of mucus, an altered condition of urine, frequent and difficult micturition, pain in the region of the affected organ as well as in the adjoining parts, and more or less constitutional derangement. The quantity of mucus mixed with the urine varies considerably in different cases and in different conditions. In mild cases and in the beginning it is usually very small. At a more advanced period it is sometimes enormous, constituting as much as four-fifths of the entire volume. The secretion is usually very thick, ropy and viscid, and after standing some time it adheres to the bottom of the receiver. During the progress of the disease the urine becomes highly acid, so that the bladder can hardly tolerate its presence, even for a few minutes. It generally has an ammoniacal odor; is of a dirty, turbid or blackish color; rapidly decomposes, and is nearly always mixed with epithelial, fibrinous, purulent and phosphatic matter. Renal casts are frequently present, when it is accompanied with serious involvement of the kidneys. Pus may proceed from various sources, as the bladder, ureters, prostate gland, or even the kidneys, which are often involved. Its presence is always regarded with great attention, as it indicates serious disease of the organs from which it proceeds. The discharge which accompanies this disorder may be mistaken for semen,

<sup>1</sup>*N. C. Med. Jour.*, XLV, No. 6.

or it may be mixed with semen, when this flows back into the bladder and mixes with the urine, as in stricture or enlargement of the prostate gland. If any doubt exists this can readily be solved by the microscope.

The prognosis varies with many circumstances, as the cause, duration of the disease, and the age and constitution of the patient. In its incipient stage it is sometimes not difficult to cure; but when it has disordered the whole system, the prognosis is much more unfavorable. Sometimes the walls of the bladder are ulcerated and thickened to five or ten times their natural thickness, and the kidneys, ureters, and prostate gland are implicated.

In the treatment of this affection it is of the greatest importance to ascertain the nature of the exciting cause. Stricture of the urethra must be removed, stone in the bladder extracted, hypertrophy of the prostate gland, and diseases of the neighboring or associated organs mitigated, before any reasonable hope can be indulged of a permanent cure.

The patient should be put to bed and kept perfectly quiet and a general antiphlogistic course of treatment instituted, even if there be no marked constitutional disturbance. The bowels should be opened with saline cathartics or enemas, and if the secretions are disordered, with calomel and jalap. All medicines tending to irritate the rectum should be avoided. The most perfect quietude, both of body and mind, should be enjoined. The diet should be light and bland, consisting largely of milk. Demulcent drinks should be freely given. General or local bleeding is highly recommended in plethoric subjects. Warm baths and hot fomentations are very useful. When by these means the violence of the disease has been subdued, internal remedies, such as balsam copaiba, buchu, uva ursi and the terebinthinate preparations may be employed. In acid conditions of the urine an alkaline treatment is always indicated; while in alkaline states of the urine acids are to be given. Opiates, hyoscyamus, etc., are indicated for the relief of pain. In gouty and rheumatic subjects, colchicum and the iodides are ex-

tended, and iron for anemia. Benzoic acid has been recommended as sometimes affording relief when everything else fails. Salol has been used a great deal within the last ten years as an antiseptic and with good results in many cases. These agents with many others, have been used by the profession with more or less success and all have their advantages in certain cases.

The author then calls attention to the local treatment of this affection and emphasizes its importance as the most rational and scientific treatment for chronic cystitis, and the only treatment that will give satisfactory results in the great majority of cases. Irrigation of the bladder should always be done under the most absolute antiseptic precaution, and no air allowed to enter the organ. And at the same time attention should be paid to the general health.

The frequent irrigation of the bladder, which can always be accomplished, if carefully used, with a soft rubber catheter and an ordinary syringe with boiled water or antiseptic solution composed of nitrate of silver  $\frac{1}{2}$  to 2 per cent. or stronger; permanganate of potassium  $\frac{1}{2}$  to 4 per cent.; boric acid 2 to 10 per cent.; creolin from 1 to 5 per cent.; corrosive sublimate 1:20,000 to 1:5,000; carbolic acid 1:500 to 1:250, and many others belonging to the same class of antiseptics. The effects of silver injections are sometimes marvelous, though somewhat painful if used in strong solution, while carbolic acid makes a very soothing and pleasant wash in a number of cases where other remedies produce irritation. In cases which fail to yield to these methods of treatment and in which urination and painful tenesmus are prominent symptoms and are accompanied by a gradual failure of the general health, a perineal cystotomy, followed by permanent drainage, will often be required and give marked relief and occasionally result in an entire cure. The importance of a systematic course of treatment in every case should be carefully observed; and if given a thorough trial, it will take its place as the first and most important means of relieving this class of suffering humanity.

To illustrate, the author reports one of the worst cases that has come under his care within the last few years.

Mr. F., age 59, when a boy received a traumatic stricture from a fall, from the effects of which he suffered several years. He got along very well until fourteen years ago, when the cystitis set up again and with the best of medical treatment, he grew worse until the fall of 1887, when an external urethrotomy was performed. Patient got along very nicely for several years by passing a No. 16 or 17 bougie once a week, but suffered more or less from spasm in urinating most of the time. He began at this time to suffer again with the inflammation, for which a thorough course of internal treatment was given, consisting of balsam copaiba, buchu, etc., which was kept up until two years ago, when he came under the author's care. At this time the discharge was almost entirely composed of mucus, etc., and he could not retain his urine more than five to ten minutes at a time, and had no control of his bowels at all, unless under the influence of an opiate. At this time he presented all the local symptoms of a very bad chronic cystitis, without fever or other marked constitutional symptoms.

In addition to constitutional treatment the bladder was irrigated with silver solution, 1 to 2 grn. to the ounce, twice a week, and in the meantime used warmed boric acid irrigations night and morning regularly. Under this treatment he began steadily to improve, and within several weeks was able to attend to his business. With an occasional irrigation, he kept up very well until last fall. At this time he had a return of all his local symptoms with marked constitutional disturbances in addition. He presented every appearance of suffering from septic poisoning. His condition in every respect was much more serious than it ever had been before, and he had given up all hopes of getting up again. This time he was brought to the hospital and a systematic course of local treatment in addition to his constitutional treatment was begun. His bladder was so irritable that the silver solution could not be toler-

ated in any strength, and the carbolic acid solution, 1:500, was used regularly night and morning. His urine was drawn every three or four hours. At the end of two weeks under this treatment his fever, which had ranged from 103° to 104° F., prior to this time, was reduced to normal and remained so throughout his illness, with one or two exceptions, when he had only a slight return for a day or two.

At this time the capacity of his bladder had increased from one ounce to several and his urine had to be drawn only two or three times in twenty-four hours, and his general health was improving satisfactorily. He remained in the hospital several weeks, during which time local irrigation of the bladder was regularly kept up night and morning with carbolic solution from 1:500 to 1:250. His general health improved very rapidly and he returned home about the first of last December; since that time with an occasional irrigation kept up by himself he has been attending to his business.

The doctor concludes that while this patient is not cured, yet he would in all probability not be alive but for the local irrigation.

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## The Treatment of Infantile Summer Diarrhea

IN spite of the attention which has been given of late years, especially by physicians practicing in the crowded districts of large cities, to the study of the causes, prophylaxis and treatment of infantile summer diarrhea, the mortality continues high—some statistics giving the death rate even as high as 97 per cent. The reasons for this heavy mortality are not far to seek. The refusal of parents, either through ignorance or carelessness, to inform themselves concerning or to take advantage of the more or less perfect preventive measures placed by sanitary science within their reach; the low resisting power and lack of stamina on the part of the infants attacked; the fatal delay in seeking medical aid, until the disease has practically done its work, added to the unavoidable factor of



summer heat, account but too well for the severe death rate.

The etiology resolves itself into one ultimate cause—heat. Heat depresses the vitality of the child, and weakens its resisting power; heat favors the growth of the bacteria which produce the disease; heat produces deleterious changes not only in cow's, but in mother's milk, and rapidly multiplies the microorganisms which find their way into the milk from the air or from food containers.

Remembering the bacterial origin of the disease, it is not difficult to appreciate its clinical manifestations. Few maladies offer a more characteristic clinical picture than this. The sudden onset, rapid development of symptoms, the quick collapse, all point in a typical case to the existence of a profound toxemia. The stools, at first brown and corious, become greenish-yellow, then green, and finally watery, with a mousy odor. The temperature may be high in the rectum, but comparatively low on the surface. There is restlessness and severe thirst. The child moans and lies with upturned eyes and frequently emits a sharp, fretful cry, likened by some observers to the cry of meningitis.

The treatment of this disease should be preventive, and this concerns the education of the public as to the necessity of fresh air, cleanliness, hygienic feeding, and alertness in recognizing the early manifestations of the disease and promptness in seeking proper medical care.

Prof. Jacobi,<sup>1</sup> in speaking of prophylaxis, says that avoidance of errors in diet and hygiene is the best preventive. The debilitating influence of persistent summer heat should be counterbalanced by improving the vitality and powers of resistance in the young. It is true no newly-born baby should be bathed in cold water, but the gradual diminution of the temperature of the water used for ablutions may go on until after a few months the healthy infant bears washing and friction with cold water perfectly well. During the hot weather it should be so treated several times a day. The clothing should be thin;

those who perspire freely should have no linen next to their bodies, cotton or thin flannel, both of which gradually absorb and give up perspiration, are preferable. In very warm weather a single loose gown is sufficient. No feather beds or pillows should be permitted; no heavy curtains. The baby is better off in a hammock, the head being supported by a hair or air pillow. Babies in bed should have their positions changed from time to time. Their mouths should be anxiously watched, a teaspoonful or more of water being given after every meal; the washing should be done without clumsy rubbing; and plenty of drinking water, the quantity depending on season and the temperature of the atmosphere, should be allowed in the intervals between feedings.

The remedial measures are hygienic, dietetic and therapeutic. Success in treatment is directly proportional to the promptness with which remedial measures are instituted and the thoroughness with which they are carried out. Food of all kinds should be withheld for some hours. Not only vomiting, but uncomplicated diarrhea, indicates the withholding of food or drink. The introduction of water into the rectum furnishes enough fluid during this dangerous condition. The thirst will rather decrease than increase during this period of apparent starvation. After a reasonable time small pieces of ice, which in the beginning would increase peristalsis, or a teaspoonful of boiled water (cooled) may be given, or the same quantity of a thoroughly cooked and strained barley, or toast, or rice water.

At this stage of the ailment no milk is permitted, no breast milk, no sterilized or Pasteurized milk. After a few days the white of a raw egg, thoroughly beaten and mixed with barley or rice water, may take the place of milk. The thirst may be quenched by a teaspoonful of a mild tea, or a few drops of good whisky in a small quantity of barley water may be given at safe intervals. A mixture which will render good service when the period of absolute starvation has passed is as follows: 150 Cc. (5 oz.) of barley water, the white of

<sup>1</sup> *Therap. Gaz.*, XV, No. 8.

one egg, one or two teaspoonfuls of whisky, enough salt and cane sugar to improve the taste. Of this a teaspoonful is administered every five or ten minutes. This is ample for sustenance, particularly when methodical rectal injections are employed. After a while sterilized or Pasteurized or boiled milk may be added, but not more than ten per cent. of the mixture. Expressed meat juices, beef and mutton broths, are excellent foods, and may be continued for some days, on account of their small bulk and slight residue.

It should always be kept in mind that the element of heat exhaustion enters largely into these cases. The child, if possible, should be removed to good hygienic surroundings, and a tepid bath be given every day. During the heat of the day the child should preferably be kept in a cool, darkened room. In the cooler hours of the morning, afternoon, and evening, the child should be out of doors. Fresh air is very important for these cases, and the presence of fever is not sufficient cause for keeping the infant indoors. The clothing should be loose, of light flannel or wool—a shirt, diaper, stockings, and long, loose outer garment being all that should be worn. Extra covering may be necessary at night. The room should be large and well ventilated, care being taken to protect the child from draught. The child should be sponged or bathed frequently, the temperature of the bath being regulated by that of the patient. The napkins should be changed often and thoroughly disinfected.

Lavage of the stomach and colon is given a prominent place in the modern treatment of infantile diarrhea. The stomach is washed out by means of a flexible rubber catheter used as a siphon. Plain boiled water, to which a little salt is added, or mild antiseptic solutions are used. By this means the stomach is cleansed and soothed. Flushing of the lower bowel, as practiced by Dr. Louis Fischer,<sup>2</sup> is done by placing the child on its left side, introducing a flexible rubber tube and

anointing with carbolized vaselin. Having passed the external sphincter, he invariably allows the water to flow into the rectum in order to balloon the same, and then continue to push the tube beyond the rectum into the colon. A little difficulty is sometimes encountered, owing to the spasmodic contraction of the muscles, but by waiting a short time, and using a little patience, the tube can be easily pushed into the colon. A pint or a quart of the warm saline solution is used to flush the bowels, and in this manner wash away as much of the offending debris as exists within them.

Besides table salt solution, a one-per-cent. boric acid solution can be used, so also can 1:10,000 solution of mercury bichloride. A solution of ten grn. of tannic acid to a pint may also be used, and a 1:1000 solution of silver nitrate is indicated in other cases.

Starch injections, made by adding two teaspoonfuls of the ordinary starch to a teacupful of warm water of a temperature of 105° F., may be given. They are very advantageous, as the colon changes starch into dextrin, which is easily absorbed. Thus not only does the latter cleanse, but it is also nutritious. Large quantities of saline solution can be introduced directly into the circulation by means of cold washing, thus adding to the volume of the blood. When severe tenesmus exists, painting of the lower end of the rectum with a two-per-cent. solution of cocaine is frequently very advantageous.

Of the many drugs which have been employed for this disease comparatively few have proved of real service. Of the purgatives, calomel and castor oil are most used. The tendency of castor oil to constipate makes it a valuable remedy, when the stomach will retain it. It should be given in teaspoonful doses. Calomel, being antiseptic and cholagogue as well as purgative, and not so prone to upset the stomach, is even more useful. Of the antiseptics, salol in doses of one, two, and three grn. for each year respectively, is another valuable remedy; so also is resorcin, in doses of  $\frac{1}{4}$  to 1 grn. for a child one year

<sup>2</sup>*Ther. Gaz.*, xv, No. 8.

old, three or four times a day. Bismuth, the subcarbonate, subnitrate, and salicylate of which are employed, and give good results. The older preparations of the vegetable astringents, such as tannic acid, are less used than formerly, their place being taken by the newer albumin compounds, notably tannalbin, which are especially useful when large mucous stools are present.

The peculiar virtues of tannalbin (produced by heating tannin albuminate at 110°-120° C. during 5-6 hours) are stated by Dr. Gottlieb<sup>3</sup> to be due to its insolubility in the gastric juice, while it is completely but slowly soluble in the intestinal secretions. Its action begins in the duodenum and only ends after reaching the lower bowel. This non-action in the stomach, followed by mild but continuous action throughout the intestines, distinguishes it from tannin, tannic acid, as well as from the mineral astringents, such as bismuth, lead, and silver.

To relieve pain and check excessive peristalsis, opium, in the form of the camphorated tincture, 4 to 10 min. for child six months old, the deodorized tincture ( $\frac{1}{2}$  min.), Dover's powder ( $\frac{1}{2}$  to 1 grn.) or dionin (1-10 to 1-5 grn.) is indispensable. It should not be given, however, until the intestinal tract is clear of all fermenting material, when the stools are frequent and odorous, or when the temperature is high and cerebral symptoms threaten.

Stimulation is necessary in some cases from the very beginning. Coldness of the extremities is to be met with hot water bottles, friction, etc. Of the drugs used for this symptom, brandy, on account of its subsequent astringent effect, is much used; aromatic spirits of ammonia, on account of its rapid action; strychnine, 1-100 grn. doses, and atropine find their indications.

When the urgent symptoms of the disease have disappeared there is utter exhaustion, anemia, want of appetite, absence of the normal secretions and of the muscular powers of the digestive organs. In this condition there are two remedies

which act as stimulants and tonics; strychnine, any of whose salts may be given in doses of one-sixtieth grain or more daily, in divided doses; and orexine tannate, which should be taken a few times a day, in doses of from one to three or four grains some time before meals, several times a day.

### The Treatment of Pneumonia in Children

IN an article on the treatment of pneumonia in infancy and childhood, Dr. Isaac A. Abt,<sup>1</sup> professor of diseases of children at the Northwestern University Woman's Medical School, says that the acute pneumonias which occur in children may be classified anatomically as broncho and croupous, and that the former predominates largely, in the proportion of three to one. He accepts Carmichael's clinical differentiation of four types of pneumonia in children: (1) The true croupous variety, the chief clinical features of which are sudden invasion and complete consolidation, with no indication of bronchial catarrh. The crisis occurs in from 7 to 10 days, the severity of the symptoms depending not on the degree of consolidation, but on the amount of toxemia. (2) A class characterized by a bronchial catarrh, involving the smaller bronchioles—the so-called capillary bronchitis. Both lungs involved, but no sign of consolidation. (3) Cases in which bronchial catarrh is also a prominent feature. May be confined to one lung, but frequently involves both. Small areas of consolidation may be detected by the stethoscope. Onset is gradual, the fever irregular, and the disease lasts fourteen or twenty-one days, ending by lysis, rarely by crisis. (4) In the last variety bronchial catarrh is associated with larger areas of complete consolidation, extensive enough to be recognized by the stethoscope, the dulness, however, not being so absolute as in the fibrinous form.

The pneumococcus is nearly always present in cases of croupous pneumonia, as well as in a certain proportion of broncho-pneumonias. The secondary cases of broncho-pneumonia must be looked upon as ex-

<sup>3</sup>Deut. med. Wochenschr., 1896, No. 11.

<sup>1</sup>Med. Review, XLI, No. 25.



amples of mixed infection. The pneumococcus is frequently associated with the streptococcus, particularly in those cases which follow the acute exanthemata and pertussis. The bacillus of Friedlander and the tubercle bacillus are frequently associated with the pneumococcus.

Pneumonia is one of the most serious and fatal diseases of early childhood. During the first two years of life, the mortality in private practice varies from ten to thirty per cent. In hospital practice, where rachitic and badly nourished children are the rule, the mortality may be as high as sixty-five per cent. With these facts in mind it must occur to every one that the present treatment of pneumonia in children at its best leaves much to be desired. The main hope would seem to lie in the direction of the specific antitoxin treatment, but, as in broncho-pneumonia, more than one micro-organism is concerned and mixed infection is the rule, little is to be hoped from this line of treatment.

The prophylaxis of pneumonia consists in the early treatment of every case of acute bronchitis and nasal catarrh which comes under observation. Such children should be confined to a warm and well-ventilated room. In cases where the patients are suffering from fever with coryza, laryngeal irritation and cough, associated with dry bronchial rales, they should be put to bed and given one or two hot baths daily at a temperature of 95° or 100° F. The nasal cavities should be cleansed several times daily with mild alkaline antiseptic solution or saline solution. Somewhat similar precautions should be taken with children who are suffering from measles and whooping cough.

In the short discussion of the treatment of pneumonia of infancy and childhood which follows, both forms of the disease are considered together.

The hygienic treatment is not the least important element in the intelligent and successful management of these cases. The patient should be placed in bed; the temperature of the room maintained at about 70 degrees F., and there should be not less than 1,000 or 1,200 cubic feet of air space for

each individual occupying the sick room. The room should be well ventilated and frequently aired; nothing is more important than an abundant supply of oxygen for these children. In order to prevent atelectasis and hypostasis in older children as well as in infants, the position of the patient in bed should be frequently changed. Infants may be picked up and held upright in the nurse's arms. The feeding should be supervised. The regular hours of feeding are to be maintained; if necessary the food may be diluted. Milk is the main article of food, and in cases where it is difficult of digestion it may be peptonized. Water is to be given freely and between feeding. It is well to begin the treatment of these cases by the administration of small and frequently repeated doses of calomel. This is particularly indicated if there be gastric irritation, constipation or tympanitic abdomen at the onset. In this way free action of the diaphragm is permitted, and very frequently the patient rendered more comfortable.

Various plans are in vogue for the reduction of temperature. The coal-tar antipyretic drugs have been pretty generally discarded for the treatment of fever. Warm baths, cold baths and the cold pack are recommended for the reduction of temperature. In the children's ward of Michael Reese Hospital the temperature in cases of pneumonia is reduced by employing the chest compress, changed every half hour or hour. If this plan does not materially influence the temperature, cold or tepid sponging is employed. It is sometimes found necessary to tub these patients; they are placed in baths of 90° or 95° F. The temperature of the water may be gradually reduced. Warm baths are indicated in weak or debilitated children where there is an actual or threatened state of collapse. Friction over the body should be maintained while the child is immersed. Bath should not last longer than five minutes. If marked cyanosis occurs the child should be immediately removed from the bath, placed in bed and external heat applied.

At the hospital it is the custom to begin in the severe cases somewhat early with

alcoholic stimulation. It is the abuse rather than the use of alcohol in these cases which calls for condemnation. Excessively large doses should be avoided. Brandy or whisky is employed, diluted from six to eight times with water; the dose varies from one-half to three ounces in twenty-four hours, for children under four years of age. Aromatic spirits of ammonia is a rapidly acting and diffusible stimulant, and may be repeated every hour or two. It is less objectionable than the other ammonium preparations, in that it is not so likely to provoke indigestion and nausea. Strychnine is also in common use. It cannot be denied that if it is used judiciously it is of value as a cardiac and respiratory stimulant. A child one year of age may have  $\frac{1}{300}$  of a grain, repeated as often as every three hours. Digitalis, strophanthus and caffeine are warmly recommended. It seems better not to use these remedies in a routine way, but to hold them in reserve until the condition of the circulation demands them. Where the pulse is small, weak and rapid, and the cyanosis marked, nitroglycerin in doses of  $\frac{1}{300}$  to  $\frac{1}{100}$  of a grain repeated every two hours, has proved of great value in some cases. Oxygen is to be looked upon as a respiratory stimulant. It proves to be of great usefulness in tiding patients over sudden attacks of cyanosis and dyspnea. Emetics and nauseating expectorant mixtures have no place in the rational treatment of pneumonia. They do more harm than good by deranging the digestion, by interfering with the nutrition and lowering the resistance of the patient. Poultices are still sometimes used for the relief of pain or where there is much dyspnea. They are of doubtful value, and the energy required for their preparation may better be expended in other directions. The use of a cotton jacket or the custom of swathing the child in cotton, or the more recent innovation of plastering the child's chest with proprietary salves, do not in any way affect the progress of the disease or add to the comfort of the patient. Where the symptoms of bronchitis are prominent and the secretion is scanty, or where the cough is persistent and annoying, relief is sometimes obtained from steam inhalations

with the vaporization of creosote, turpentine or benzoin. This should be used interruptedly, that is, for ten or fifteen minutes, and repeated every two or three hours. The inhalations are best carried out if the child is placed in a tent.

Opium in the form of paregoric, or Dover's powder or codeine, may be employed for the relief of cough or pain. The cough in these cases is seldom so severe as to require the use of opium; the pain can usually be controlled by the application of the ice-bag or the cold compress, or, if necessary, hot applications. For the restlessness and nervousness, baths and packs already referred to, and an ice-bag to the head, usually bring the desired relief. The bromides or trional may be required for sleeplessness. Counter irritation in the form of mustard paste is very generally employed. The paste may be left on five or six minutes and repeated eight or ten times daily. Turpentine stupes may be used in the same way. In cases where sudden collapse and cyanosis occur, which are of common occurrence, particularly in broncho-pneumonia, the rapidly acting stimulants are used and oxygen is employed. Good results are often obtained if the child is immersed for a few moments in a hot mustard bath. In protracted cases which continue for weeks and months the general supporting treatment should be persisted in. Careful attention should be paid to the diet and the hygienic surroundings. Creosote internally and by inhalation may be tried. After the fever has disappeared these patients do best if they are given a complete change of air. If possible they should be removed to a warm and dry climate. Cod-liver oil, arsenic and iron should be employed for their tonic effect.

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**Ichthyol**, employed in the form of ichthyol-vasogen, is reported to have given Dr. von Oswiecinski,<sup>1</sup> of Kattowitz-on-S., excellent results in the treatment of dysmenorrhea. The author employs the remedy in the form of tampons, after abdominal massage has been performed while the dilator is still in position.

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<sup>1</sup>*Klin.-therap. Wochenschr.*, v. No. 23, 1898.

## Influenza in Children

THE treatment of this disease with sodium benzoate is strongly advocated in a paper by Dr. H. B. Sheffield,<sup>1</sup> who says that influenza is an acute infectious and contagious, epidemic and sporadic disease, caused by a thin little bacillus with rounded off and thickened ends, twice as long as broad, which was discovered by Pfeiffer in 1892. It is characterized by a group of inflammatory symptoms of the respiratory, digestive and nervous systems, severe prostration, and a marked tendency to complications and sequelæ. Desiccation arrests the development of the bacillus, which accounts for the epidemics during damp seasons of the year.

It is generally accepted that influenza enters the system through the respiratory tract. According to Guenther it is yet uncertain how the digestive and nervous systems become infected. The former is implicated directly by swallowing the infected expectoration, and the latter by the gradual spreading of the disease by way of the eustachian canal and frontal sinus. On the other hand, it is probable that the influenza bacilli enter primarily with the ingesta and infect the blood, which serves them as the source of further propagation. This view is supported by Canon, who was the first to detect this micro-organism in the blood of influenza patients. It must be remembered, however, that the latter observation is as yet lacking authoritative corroboration.

The pathology of influenza is, to say the least, very obscure. It differs with each epidemic as well as each individual attack. The lining membrane of the pharynx and whole respiratory tract of a case of influenza of moderate severity is usually hyperemic and sparingly covered with grayish spots. The bronchi and bronchioles are filled with muco-purulent secretion containing colonies of influenza bacilli. Here and there the alveoli of the lungs are involved, undergoing hepatization. In severe and protracted cases the inflammation

extends throughout the whole lung substance and even to the pleura, presenting the pathological characteristics of bronchopneumonia, croupous pneumonia, or pleurisy.

The alimentary canal very rarely escapes infection, catarrhal inflammation of the stomach and duodenum being the mildest lesion. Quite frequently the solitary and Peyer's glands are grossly inflamed and thickened, giving rise to the suspicion of typhoid, especially when the spleen is found enlarged. In two infants who died of influenza after forty-eight hours' illness severe inflammation of the jejunum was found, and in one infant, nine weeks old, dying suddenly two hours after the onset of this disease, perforation of the jejunum, associated with congestion of other parts of the alimentary canal, was detected.

Reviewing the literature of influenza, the author finds little said on the pathology of the circulatory system. As with many similar febrile disorders, turgescence of the venous system is often encountered. The heart disturbances spoken of later are probably functional in nature. Occasionally small thrombi are located in the brain and spinal cord. Cases are also on record in which there were found hemorrhagic extravasations and purulent exudations in the ventricles filled with influenza bacilli.

*Respiratory Symptoms.*—Preceded by a brief prodromal period, consisting of indistinct symptoms of coryza, indigestion, and general malaise, the active stage of influenza is ushered in with vomiting, chilliness, and rise of temperature. The sneezing and cough become more harassing, and the breathing is greatly accelerated and apparently very painful. The cough is dry, loud, and harsh, remaining so until the decline of the attack. The whole throat is deep red in color, and the tonsils and pillars are swollen and covered with mucus, and at times with yellowish little dots. This muco-purulent secretion, like the expectoration, invests large colonies of influenza bacilli. Physical examination reveals the usual signs of laryngo-bronchitis. At times fine crepitation may be heard along the apices which, with the previously mentioned symp-

<sup>1</sup>*N. Y. Med. Jour.*, LXXI, No. 26.



toms, is apt to lead to the erroneous diagnosis of pneumonia. Indeed, those who study these cases will agree with the writer that the differentiation between the respiratory disturbances of la grippe and actual pneumonia is next to impossible at the outset of the attack. In young infants marked dyspnea and cyanosis are not uncommon.

*Digestive Symptoms.*—The digestive organs are almost invariably implicated, anorexia and vomiting marking, as a rule, the beginning of the active stage. Vomiting may prove a very troublesome symptom, leading as it does, to rapid exhaustion. There is a difference of opinion as to whether diarrhea or constipation predominates in influenza. In ordinary cases neither of them is alarming, and the inclination is to attribute the former to the administration of laxatives and the latter to that of opiates.

*Nervous Symptoms.*—As before stated the eustachian canal and frontal sinus serve as portals of entry to grippal infection of the nervous system. The points of entrance of these canals are, as a rule, more or less involved in almost every case, giving rise to the terrific headache and earache respectively. With the spreading of the inflammation toward the brain a chain of complications arise, varying in severity with the intensity and extent of the infection from slight irritability, which is associated with every febrile affection, to expressed symptoms of meningitis.

Among the characteristic nervous phenomena of influenza may be mentioned in the order of their frequency, hyperesthesia, somnolence, insomnia, and vertigo. The pain is apparently very severe. The child cries when it is being lifted or moved about in the bed, but if left alone it can stretch its limbs apparently without difficulty. The pain in the neck, trunk, and extremities often keeps the little patients in a position closely resembling opisthotonos, thus tempting the observer to diagnose meningitis, especially if somnolence appears early. The latter symptom varies from mere drowsiness and apathy to pronounced semi coma.

*General Symptoms.*—Influenza begins

with an abrupt rise in temperature of three to five degrees, which remains constant for a few days and declines by lysis or crisis, and is usually accompanied by sweating. In very young infants the temperature, being naturally subnormal, does not serve as a reliable guide, but, on the contrary, is misleading. Thus in eight infants under two weeks of age, presenting unmistakable symptoms of influenza, Strassman found the temperature to average 95° F. Prostration is invariably present, even when most of the other symptoms are masked. The little patient lies exhausted, almost in a state of collapse, seemingly without a spark of life in body or mind.

*Complications and Sequelæ.*—There are but few acute affections which can compare with influenza in the tendency toward prolific complications and sequelæ. Pneumonia is especially common.

Meningitis is among the grave complications. It occurs either primarily with the invasion of the grippal attack or secondarily following other complications, such as otitis and mastoiditis. Indeed, otitis is of such common occurrence and so often neglected that the rarity with which mastoiditis is encountered is rather a conspicuous feature.

Holt, Earle, and Fürst mention nephritis as a complication of influenza. Earle, Davis, and Holt saw cases of pulmonary tuberculosis following this disease. B. M. Smith observed several cases of pleurisy. Holt records also a case of pyelitis. Earle reports four cases of purpura hemorrhagica. One case of empyema came under the care of the writer.

Influenza is productive of otitis, rhinitis, conjunctivitis, and periostitis, and a few more minor complications, which are usually met with in other febrile diseases of children.

*Treatment.*—When it is realized that influenza, aside from being transmitted through the air, is also communicable from one person to another, the question of prophylaxis, the most important measure of which is early isolation, arises. The disease may be frequently confined to a single member of large families, and the

fact that in an orphan asylum of over eight hundred children the disease was limited to but forty-nine speaks well for the efficiency of such prophylaxis.

It is perhaps needless to say that general hygienic rules must be insisted upon. Furthermore, as the maintenance of a high state of health is Nature's preventive, the appearance of any respiratory or digestive disturbances during an epidemic of influenza must be remedied at once. Careless exposure to atmospheric changes and grippal surroundings must be avoided. The early prostration calls for wholesome, nutritious, and easily digested diet. Beef tea or the expressed juice of meat, milk, and farinaceous food must be given in small quantities and frequently repeated. In cases of intolerance, pre-digested foods must be resorted to, and where vomiting is pronounced nutrient enemata are to be given.

The active treatment is chiefly symptomatic. Antipyretics in the form of coal-tar products are certainly of great value, as they simultaneously reduce temperature, relieve pain and allay nervous irritation, and dispense to a great extent with morphine preparations. Sodium salicylate, salol, and quinine answer well in many cases. There is one drug which acts almost as a specific in influenza, and has so far not received deserving attention—sodium benzoate.

The writer's experience with this drug began five years ago, when a child with a severe attack of acute articular rheumatism was rapidly cured with sodium benzoate and salol. Encouraged also by the fact that large doses are well borne by children, he decided to employ it in influenza, an epidemic prevailing about that time. The results were exceedingly satisfactory, most of the symptoms having subsided within forty-eight hours. Since then sodium benzoate has formed his remedy not alone in influenza, but in all its complications as well. Occasionally it is found necessary to administer small doses of acetanilid for reduction of high temperature and relief of pain, and, when the latter is severe, also a little codeine. After having given acetani-

lid to thousands of patients in diverse diseases he has yet to see any untoward results following its use, provided proper caution is taken in prescribing a moderate dose. Where any depression is to be feared a small dose of caffeine is a safe addition. Whenever "rheumatoid" pains predominate, he combines the above drugs with salol, which acts at the same time as an intestinal antiseptic.

Sodium Benzoate,

Salol,

Acetanilid.....of each 1½ grn.

Caffeine..... ¼ grn.

Make one powder.

One powder every three hours to a child six years old, or, if the pain is severe and the child is kept awake, add one-twelfth grain of codeine sulphate to each powder. Where children refuse to take powders codeine may be added, if necessary.

In connection with sodium benzoate by the mouth the inhalation of compound tincture of benzoin acts as an admirable respiratory antiseptic, expectorant, and antispasmodic. One tablespoonful of the tincture is added to a quart of boiling water in a tea kettle or tin basin and maintained in a state of constant simmering over a gas or alcohol lamp during the entire sickness. Occasionally a hot flaxseed poultice and expectorants are indicated. Where digestive disturbance is predominating, small doses of calomel and ingluvin form a useful combination. Nervous phenomena, such as extreme irritability and convulsions, usually yield promptly to the administration of sodium bromide and chloral, although under the sodium-benzoate treatment but few cases required nerve sedatives or hypnotics. By far the more important is the remedying of the characteristic prostrations, and here small doses of strychnine sulphate and the divers ammonia preparations are most useful. If the cough is very protracted, minute doses of creosote with glycerin, alcohol, and a pleasant adjuvant may be given. Special attention must be paid to the prevention of complications, be they grave or mild, and it must be remembered that it is the attention to the comparatively little things that renders an attack of influenza devoid of danger.

# PROGRESS IN MATERIA MEDICA

**Thyroid Extract** was given to eighty-eight insane patients in the Central State Hospital at Petersburg, Va., according to a report by Drs. William F. Drewry and J. M. Henderson.<sup>1</sup> The cases were selected as fair representatives of the hospital population and comprised several types of insanity. The remedy was given by mouth, usually before meals and in doses of from two to sixty grains from twice to six times daily. Generally the initial dose was small and gradually increased. The duration of the treatment varied from fourteen to ninety days, with intermissions in a few cases. Hygienic and dietetic measures were employed when indicated. Very careful observations were taken before, during and after the treatment in the hope of deriving some valid general conclusions. The results, however, were distinctly disappointing, the effects of the drug seeming to be almost inappreciable. No uniform, definite action on any of the vital functions was observed. Doses of sixty grains, three times in a day, were given to some of the patients, and on one occasion this quantity was given as the initial dose without any reaction whatever. Gastric disturbances were observed in three or four instances, and in one or two, vertigo and headache supervened. Reaction, when observed at all, seemed to bear no relation to the size or frequency of the doses. In short, the authors declare themselves unable to make the slightest prevision as to the effects of the drug in any particular case. Some of the patients under this treatment recovered, but they were favorable subjects, whose chances would have been good without medicinal aid. In conclusion, the opinion is expressed that thyroid extract is a remedy of very limited, if any, value in any form of insanity. However, the suggestion is offered that it might be well to give the drug a trial after every rational line of treatment has failed.

**Ichthalbin** has been employed with superlative results for the past two years by Dr. Otto Binder<sup>2</sup> in several hundred cases of the most varied character. The author found it to be excellently adapted for use in gynecology, gonorrhoeic and catarrhal inflammations of the vagina being rapidly improved and finally cured by insufflations of ichthalbin powder. The redness and

swelling of the mucosa, the secretion, and particularly the disorders, soon disappear, usually in 3 or 4 days. Where erosions of the *portio vaginalis* exist, as is usual in most cases, the rapidity with which the erosions take on new skin is astonishing. The keratoplastic action of the remedy is unquestionably very great, the only requisite being a quite liberal application of the powder. The author employs ichthalbin also in hyperplastic chronic metritis, in peri and para-metritic exudations, also with good results, complaints being thus avoided regarding the annoying copious secretion, disagreeable odor, and soiling of the linen, which play an important role in private practice, as when ichthalbin is freely used nothing remains but a greenish-gray, crumbly mass which is in nowise annoying.

The excellent antiseptic, tonic, and regenerative action of the remedy next led to its employment in chronic nasal catarrhs, complicated with hypertrophied mucosa and turbinated bones. The ichthalbin in powder was used as a snuff from one to three times a day. When there existed in addition bleeding granulations and excoriations, and a more strongly tonic effect was desired, powdered eucalyptus leaves were added to the ichthalbin (1:5); with both of these forms equally satisfactory results were obtained as in gynecological cases.

An excellent field of usefulness is also afforded in all cases of granulating wounds, including chronic sores of the leg. The author has found that ichthalbin is but little inferior to iodoform as an antiseptic, while far superior in tonic and keratoplastic power, and free from disagreeable odor. When leg sores present a very lardaceous appearance, the author first uses silver nitrate; then, after removal of the crust, applies ichthalbin powder once or twice daily, and covers with some impermeable bandage, whereby a comparatively rapid cure is effected in every case.

The author has no doubt that ichthalbin will be of great service in otology and dermatology, in which there is frequent requirement for a preparation which is at once tonic and antiseptic, and which will favor resorption, while being odorless, tasteless, non-irritating, and non-toxic even in very large doses. All of these properties commend this remedy for use internally as well, in all cases where an increased development of micro-organisms, swelling and

<sup>1</sup>*Virg. Med. Semi-Monthly*, v, p. 174.

<sup>2</sup>*Wien. med. Wochenschr.*, L, p. 1082.



looseness of the intestines, or mucosa, or hypertrophies of the intestinal glands require therapeutic treatment. For instance, good service was rendered by ichthalbin in chronic gastric and intestinal catarrhs in doses of 0.5 to 1 Gm. (8 to 15 grn.) twice or thrice daily, either alone or with small doses of salicylic acid. So, too, in enteric fever no case developed seriously from the time this remedy was used, in combination with lactophenin, as the sole remedial agent, unless complications existed. Not only was the severity of the processes favorably influenced, but the duration was much reduced. Patients readily take ichthalbin, and not only suffer no inconvenience, but feel comparatively well after taking it, the bowels moving lightly every day, due to the action of the liberated ichthyol.

**Zinc Chloride** used according to the method of M. Blanc,<sup>1</sup> of Saint-Etienne, is said to cure *hydrocele*. One to four Pravog syringefuls of fluid should first be withdrawn from the tumor and through the same needle, left in place, there should be injected, according to the size of the tumor, from one-quarter to one syringeful of a ten-per-cent. solution of zinc chloride. The injection should be made very slowly, drop by drop, the needle being moved in all directions during the process so as to favor the most complete possible mixture of the injected fluid with that remaining in the hydrocele. During the operation and for a little while thereafter, the tumor should be kneaded. This procedure is free from danger of syncope or convulsions and does not even require preliminary local anesthesia, as it is scarcely more painful, at the time at least, than an injection of morphine. The reaction is slight and rest in bed unnecessary, although advisable for a day or two after the operation. As a result of this treatment the tumor promptly begins to subside and complete disappearance generally follows in about ten days.

**Salol** in *smallpox* has been the subject of further investigation since the reputed good results obtained by Dr. Charles Begg with it (see MERCK'S ARCHIVES, II, p. 190). Drs. John Biernacki and P. Napier Jones<sup>2</sup> have been led to use the remedy in similar cases, and have employed the salol in a score of cases at the Dagenham Hospital. The clinical histories of only eight of the cases are given by the authors, because only these cases had not been modified by

previous vaccination. From the results obtained it would appear that salol may practically avert general pustulation, and even have a partially abortive effect when given after maturation has commenced. The influence of the treatment on maturation is, however, not constant in degree, and in one case was almost *nil*. Short of an abortive effect it almost invariably hinders pustulation, so that the pustules form tardily, the process being imperfect in a larger proportion than usual. The cutaneous inflammation is slight, and irritation is commonly absent even in confluent cases. There is generally an entire absence of unpleasant odor. Scarring is inconsiderable and often absent, the scabs scaling off with great rapidity. The most remarkable effect of the treatment is its effect on the secondary fever, which, if not absent altogether, is as a rule of little importance. On the whole, the statement is justified that salol affords a means of treating small-pox superior to the methods in vogue.

**Eucalyptol** is considered by Dr. Theo. Republica,<sup>1</sup> of Newark, N. J., in relation to its value as a nerve tonic, which, in his hands, has proved to be thoroughly reliable. For the cause of the disappointments of others, who have failed to get expected results, he alleges turpentine substitution. In all neurasthenic conditions, especially those arising from mental overwork, he finds its action to be eminently satisfactory, particularly when combined with synergistic agents, such as strychnine and phosphorus. As the effects of the drug are manifested rather slowly, he recommends that its administration in these cases be continued for three months.

**Dionin** has been employed recently by Dr. Wolffberg,<sup>2</sup> of Breslau, in 21 cases of operations for cataract, because of the excellent results previously obtained in other eye diseases with the remedy. The number, though not very large, sufficed to enable the author to fully test dionin in this class of operations. It appeared from the treatment that though dionin does not seem to possess antiseptic properties, it nevertheless imparts a higher degree of resistance on the part of the corneal tissues towards any pathogenic microbes present than other remedies ordinarily employed. The increased flow of tears which occurs at first acts effectively in cleansing the eye; the ensuing conjunc-

<sup>1</sup>Bull. gén. de Ther., CXXXIX., p. 753.

<sup>2</sup>Brit. Med. Jour., No. 2057, p. 1337.

<sup>1</sup>St. Louis Med. Era, IX, p. 353.

<sup>2</sup>Therap. Monatsh., XIV, p. 237.

tival chemosis helps towards a better wound closure and more rapid restoration of the chamber; the swelling of the lids renders more difficult all unnecessary movement on their part and thus helps to render the dionin of more service in treatment without bandaging. The purely mechanical effect of the dionin-ophthalmia is moreover of considerable value in every form of bandage. In fact, the author states that he has never before experienced such a sense of security in treating the wounds following operations for cataract as since using dionin. Colleagues who have seen cases a day or so after operations performed by the author have been convinced that the absence of all irritation, and the appearance of the wound, chamber, and pupil, left nothing to be desired; and further, that the application of dionin powder to the conjunctiva immediately after the operation was never found to be unpleasant because of sensitiveness.

Just as valuable as dionin has been found to be in all perforating corneal disturbances, just so indispensable is it also in superficial corneal wounds. The author also points out that in recurrent traumatic corneal erosions, which are so exceedingly painful, the use of dionin robs the disease of a large part of its terrors because of the analgesic action exerted by the remedy. The dionin is more particularly useful in this disease, in which cocaine can not be used because of its deleterious effect on corneal epithelial formations. In combination with atropine, dionin is besides very useful in more rapidly inducing mydriasis, at times even in iritis. Further, dionin is useful in glaucoma, particularly in chronic inflamed forms, when combined either with eserine or pilocarpine, or even both.

**Tetanus Antitoxin** is reported by Dr. Joseph F. Hobson,<sup>1</sup> of Cleveland, O., to have apparently cured a case of tetanus. The first symptoms developed twenty days after the patient was received in hospital, suffering from a compound fracture of the tibia. On the following day, when a positive diagnosis was made, an injection of 10 Cc. of the serum was given, followed by other injections at intervals of from four to six hours for the next five or six days, after which, on account of improvement, less regularity was observed. Besides the serum, 15 grn. of chloral hydrate and  $\frac{1}{100}$  grn. of hyoscine hydrobromate were given every five hours; morphine sulphate, in  $\frac{1}{4}$ -grn. doses, was given every six hours when the patient was sleepless or nervous. Under

this treatment some improvement was noted by the third day, but there was still some stiffness of the jaw when the antitoxin was discontinued on the tenth day. The local wound was not laid open, as it appeared healthy.

**Castor Oil** in small doses is believed by Dr. W. H. Thomson<sup>1</sup> to have a distinctly curative effect on membranous colitis. He gives the remedy for months at a time either a half hour before or an hour after meals and generally prescribes an emulsion containing at first one-half and later one dram of the oil to the tablespoonful. Administration is suspended from time to time if the patient's dyspeptic symptoms seem to be materially increased. Benefit is frequently derived also from silver nitrate in combination with turpentine resin,  $\frac{1}{4}$  grn. of the former to 9 grn. of the latter, three times daily; after six weeks, the silver salt may be replaced by copper sulphate in equal doses.

**Ichthyol** is, after all, a remedy which seems to give the greatest relief when used locally in these cases of atrophic rhinitis, says Dr. H. Beaman Douglass.<sup>2</sup> At a meeting of a section of Laryngologists in the Academy of Medicine, New York, this past winter, a discussion arose regarding the most useful remedy for the relief of atrophic rhinitis. The consensus of opinion among those who spoke on that occasion was very much in favor of ichthyol in some form or other. Some used it in weak solutions, two to six per cent.; some in stronger, twenty-five to fifty per cent., while others preferred the use of ichthyol pure. All agreed that in their experience it was the most valuable remedy for the relief of the disagreeable symptoms, and the best stimulant for the mucous membrane. This coincides with the author's personal experience with this remedy. It is his habit to use ichthyol in the treatment of atrophic rhinitis in three ways: First, by means of a watery solution of 10 to 20 per cent. ichthyol applied on a large pledget of cotton, and introduced into the nares upon the atrophied areas. As soon as the nares have been properly cleaned by any method considered desirable, the pledgets are placed in the nose and the patient is allowed to sit in the outer office for a period of fifteen to thirty minutes; after which, the pledgets are removed and the oily sprays are used to finish the treatment.

<sup>1</sup>*Med. News*, LXXVI, p. 849.

<sup>2</sup>*Post-Grad.*, XV., p. 776.

<sup>1</sup>*Bull. Cleveland Gen. Hosp.*, II, p. 24.



In cases of atrophic rhinitis presenting ulceration, or localities in the nose where pus is particularly persistent, or in areas that are very much atrophied, it is the author's habit to use ichthyol in full strength, rubbed directly into the parts; particularly if one of these bad places is upon the nasal septum. Ichthyol is used on cotton which is wound on a probe. This is gently rubbed for a period of four or five minutes directly into the atrophied mucous membrane.

The third method of using ichthyol is by means of salve—40 min. of ichthyol and 5 grn. of menthol, added to 1 ounce of petrolatum. This is given to the patient to use at home after cleansing of the nostril, and also each night before retiring. The patient is directed to introduce into the nostril a piece as large as a good sized bean, and then to snuff it back, when most of the salve will be distributed over the inferior meatus, and will lubricate the nose thoroughly during the night, the excess of ichthyol escaping into the post-pharynx and acting there as a lubricant.

**Bromipin** has afforded Dr. J. W. Frieser<sup>1</sup> a full and sustained action in every case of excitation or spasmodic affection due to a heightened activity of the central nervous system. Good results were always secured without even the slightest symptom of bromism ever having been observed. The excellent action of bromipin, and its perfect innocuousness, were noted in a large number of cases wherein it was given instead of potassium bromide. Among the cases treated were a number of neurasthenia and hysteria, mild and medium types of agrypnia, two cases of paralysis agitans, two cases of ischialgia, one of facial and intercostal neuralgia, and one of chorea, a satisfactory and sustained action being generally secured. Only one case of epilepsy was treated, the results being better than had been previously obtained with potassium bromide. The results were particularly good in cerebral forms of neurasthenia, in neurasthenia due to occupation, in nervous agrypnia, and various conditions of nervous excitement.

The author usually ordered the bromipin without admixture, or with a slight addition of peppermint oil or syrup of orange peel, 3 or 4 tablespoonfuls being given daily. In the case of epilepsy cited, a tablespoonful was given every two hours. The author prefers to make subcutaneous injections of the remedy, 10 Gm. (2½ dr.) being used for a dose. No unpleasantness

was encountered after this form of exhibition; the tumor resulting from the injection is sensitive to touch only, but the sensitiveness completely disappears with the absorption of the bromipin. Injected rectally, the remedy does not appear to be so effective. In conclusion the author's experience leads him to state that bromipin fully replaces the alkali bromides, and even exerts a better effect without causing by-effects or exhibiting any disadvantages. No unpleasant action on the digestion was observed, nor did bromism occur, even on long-continued use of the remedy. In view of these excellent properties, bromipin must be considered as the best of the bromine compounds so far known, and is to be warmly commended for extensive employment in suitable cases.

**Mercury Cacodylate** has been the subject of some experiments by Vayas<sup>1</sup> with a view to discovering its degree of toxicity and how this form of mercurial administration in syphilis compares with others. The mercury cacodylate employed was in the form of a white, crystalline powder, hygroscopic, soluble in water and in alcohol, and insoluble in ether. It contained 16 per cent. of mercury, and was acid towards litmus. Alkalies render its solution cloudy; potassium iodide affords a yellow precipitate soluble in an excess of the reagent. Given subcutaneously, it required 0.16 Gm. of the preparation to kill a rabbit weighing 1,900 Gm. Animals receiving injections of only 0.2 to 0.6 Gm. all increased in size. Injected intravenously, mercury cacodylate proved fatal to rabbits of medium weight in quantities of 0.1 Gm.; doses of 0.02 to 0.05 were well borne, however.

**Theobromine**, according to Dr. H. Hachard,<sup>2</sup> is an ideal diuretic, acting specifically on the renal epithelium and influencing but slightly the heart and arteries. He advises ½ Gm. doses at regular intervals, from three up to six or eight times a day. Without other arms than theobromine, digitalis and diet, he declares himself prepared to attack the diseases of the heart and kidneys. The diuretic action of digitalis he believes to be practically limited to cases in which dropsy, particularly that of cardiac origin, exists. In fact, the theory that he supports is that the accelerated blood current resulting from the influence of digitalis on the heart and arteries drains the dropsical areas

<sup>1</sup>*Klin.-therap. Wochenschr.*, VII, p. 646.

<sup>1</sup>*Bull. Com.*, XXVIII, p. 227.

<sup>2</sup>*Bull. gén. de Ther.*, CXXXIX, p. 765.



according to the established laws of osmosis, and that the overloaded blood vessels then part with their surplus contents at the kidneys, thus causing the diuresis. In a state of health, therefore, or when there is no dropsical effusion, digitalis is practically inert as a diuretic and should not be prescribed. In such circumstances, if the renal secretion is deficient, recourse should be had to certain mineral waters and theobromine, which latter may be relied on absolutely.

**Chloretone** in ophthalmic practice is favorably commented on by Dr. H. M. Morton,<sup>1</sup> of Minneapolis. In inflammatory conditions of the conjunctiva, lachrymal sac and duct, he prefers it to boric acid as being more antiseptic and more sedative. Although as a local anesthetic its effect is quite superficial, still it acts promptly and without affecting either the pupil or accommodation, qualities which render it valuable in the removal of foreign bodies from the eye. Its combination with cocaine markedly prolongs the anesthetic effect of the latter. Finally, it is very efficient as a conservant of other drugs, such as suprarenal extract.

**Dionin** as an analgesic in eye diseases was chosen by Dr. A. Darier,<sup>2</sup> of Paris, as the subject of his lecture at the March meeting of the Ophthalmological Society of Paris, in which he detailed the excellent results obtained by means of dionin in various eye diseases. The first case cited is one of hyperacute, exceedingly painful iritis of rheumatic origin. In spite of repeated atropine instillations, the pupil had failed to enlarge, the eye remaining hyperemic and sensitive to light. A very minute quantity of dionin was then introduced into the conjunctival sac, when a severe burning sensation was experienced, and the patient complained of a sense of numbness and inability to move the eye. Two leeches were applied to the temples, and an hour later the pupil was found to be enlarged to its maximum extent, and the patient felt very much relief. Two days later the patient reported that not the slightest pain had been felt since, and the pupil remained regularly and properly expanded. Similarly good results were obtained in several other like cases. In a case of double iridochoroiditis with complete posterior synechia, however, dionin did not afford such good analgesic action. In a case of double vascular keratitis with severe pain and extreme sensitiveness to light, the dionin

caused at first an acute burning sensation and distinct chemosis, after which the pain and photophobia disappeared. Pustular keratitis in children was also treated, and, although the photophobia appeared to have been lessened, as the eyes could be opened better, yet it is difficult to render a proper decision in these cases. In a case of acute parenchymatous keratitis the improvement was very rapid, and is ascribed as being largely due to the dionin employed. One application of dionin in a case of diffuse corneal infiltration due to severe trauma, and resembling parenchymatous keratitis, sufficed to afford relief from the severe pains that had resisted other remedies and prevented sleep. A case of rheumatic episcleritis, in which sodium salicylate was ineffective, was treated with dionin with the result that, after the acute chemosis which first ensued, not only was the pain entirely relieved, but the episcleritis cured. Similarly good results in rapidly relieving pain were obtained in two cases of recurring corneal ulcers. Similar experiments were carried out in various ocular affections with other analgesics in order to determine their efficiency when compared with dionin. All those tested, however, were either far inferior to dionin, or caused such toxic symptoms (cold perspiration, vomiting, fainting spells, etc.), as to preclude their employment. With dionin, on the other hand, no symptoms of this kind were observed. Dionin may be injected under the conjunctiva when it will also cause chemosis, and exert an analgesic effect. In conclusion the author says that "dionin is, for the clinician, a powerful analgesic, by means of which the most severe pains in iritis, iridocyclitis, ulcers, keratitis, and even glaucoma, may be reduced and relieved."

**Oil of Wintergreen** as used in acute rheumatism, or infectious polyarthritis, as he prefers to call it, is the subject of a communication from Dr. Edmund Rutenbiller,<sup>1</sup> who reports 122 cases treated with it. He was first led to employ this remedy through his personal experience with sodium salicylate, which not only failed to relieve his arthritic symptoms, but added to them those characteristic of salicylic intoxication. Oil of wintergreen, on the contrary, not only effected the desired relief, but produced no unpleasant results when taken continuously for three months. Although the author uses the purified natural oil, he has no prejudice against the synthetic product. Nearly all of the 122 patients were received by him

<sup>1</sup>Northwest. Lancet, xx, p. 207.

<sup>2</sup>Ophthalm. klin., 1900, No. 7.

<sup>1</sup>Amer. ther. Woch., VII, p. 582.

with the diagnosis of chronic polyarthritis. The treatment consisted of systematic hot baths in addition to the wintergreen, which latter was confidently relied on to induce profuse perspiration and to quiet the pains which were often aggravated by the baths. On account of the taste, the remedy was always administered in gelatine capsules containing  $1\frac{1}{4}$  grn. each, and the average amount given daily was 6 grn.; in no case was a daily dosage of 8 grn. exceeded. The routine procedure was to give two capsules at bedtime, two more an hour later, and one or two additional in the course of the night, thereby insuring, in most cases, about twelve hours of freedom from pain. All the patients took the remedy well, and no symptoms of salicylic intoxication were observed.

**Hydrogen Sulphide**, according to Dr. de Lado Noskowski,<sup>1</sup> of Marseilles, is a specific in nearly all maladies of bacterial origin. The explanation of its efficiency he finds in the fact that most of the pathogenic bacteria are aerobic and either perish or become innocuous when deprived of free oxygen. This deprivation is accomplished by introducing into the body hydrogen sulphide, which combines with free oxygen wherever they come in contact. From experiments on animals, the author determined that the introduction of the gas to the amount of 25 milligrammes per kilogramme of weight was not followed by physiological effects; above this point, respiratory and circulatory troubles began and increased with the dose until 35 milligrammes was reached, when death by asphyxiation always occurred. The following therapeutic doses, recommended by him, are well within the physiological limit of safety:

	—mg.—	—grn.—
For a new-born infant.	10	( $\frac{1}{7}$ )
Two to six months...	10 to 15	( $\frac{1}{7}$ to $\frac{1}{5}$ )
Six months to a year.	15 to 25	( $\frac{1}{5}$ to $\frac{3}{10}$ )
One to two years....	25 to 35	( $\frac{3}{10}$ to $\frac{1}{2}$ )
Two to five years...	35 to 50	( $\frac{1}{2}$ to $\frac{3}{5}$ )
Five to eight years...	50 to 75	( $\frac{3}{5}$ to $1\frac{1}{4}$ )
After eight years...	100 to 200	( $1\frac{1}{2}$ to 3)

In cases of extreme gravity, he doubles or triples the dose, always having at hand a solution of iodine to use as an antidote. The method of administration is by the rectum and, on account of the instability of the remedy, it is generated on the spot by one of two methods. In each hydrosulphate of sodium is brought in contact with just enough tartaric acid to neutralize

the sodium; but by one method this chemical change takes place within the body, the two substances occupying separate apartments in a suppository, and by the other method, it takes place in a flask connected with a rectal tube. As might be expected, the doctor claims to have observed the most striking results of this treatment in affections of the intestines, particularly of the colon, such as dysentery, cholera and summer diarrhea, but he has also found it decidedly beneficial in diphtheria, whooping cough, typhoid fever, etc. As affections of the respiratory organs were more rebellious, on account of the constant accessions of oxygen, he devised for their treatment an "inspirator," by means of which the remedy is breathed directly into the lungs. In the treatment of diphtheria, he advises the local application of sodium hydrosulphate followed by lemon juice or vinegar to neutralize the sodium and set free the gas to asphyxiate the bacteria on the spot. This method, begun early and thoroughly carried out, is guaranteed to save every case of diphtheria.

**Ichthyol** is the latest drug to be recommended for the cure of that obstinate complaint, *trachoma*, and several physicians report excellent results after its use. In corneal ulcers, Travis<sup>1</sup> reports good results from ichthyol in 30 per cent. solution of glycerin and distilled water. The drops cause quite severe pain, but this is much lessened if a 1 per cent. solution of holocaine is used just previously.

**Calomel** injections were tried by Dr. Toupet,<sup>2</sup> of Paris, who, influenced by the remarkable effects of intra-muscular injections of calomel in arthropathies of syphilitic origin, conceived the idea of trying the remedy in other chronic articular inflammations, believing that it might exercise a selective action on them. The majority of the fifteen cases subjected to the experiment were of rheumatic origin, but one was a gonorrheal arthritis and another was probably tubercular. The injections, which varied from one to nine, contained each 0.03 Gm. ( $\frac{1}{2}$  grn.) of calomel suspended in 1 Cc. (16 min.) of olive oil or oil of sweet almonds. With two exceptions, the patients were either cured or greatly improved. Sometimes the beneficial effects of the injections were produced immediately, without any apparent reaction at the articular lesion; at other times there was a temporary exacerbation of the joint pains.

<sup>1</sup>Rev. de Thér., LXVII, p. 365.

<sup>1</sup>Jour. Med. & Science, VI., p. 226.

<sup>2</sup>La Sem. méd., XX, p. 206.



In general, there was more or less marked amelioration, or even complete disappearance, of the functional incapacity and the pains, as well as a diminution of the hydrarthrosis and of the thickening of the peri-articular tissues. Bone lesions were unaffected.

**Guaiacol** in the treatment of *tuberculosis* is warmly endorsed by Dr. Laborde,<sup>1</sup> of Paris, who claims to have seen remarkable improvement follow its proper administration, advanced cases having been restored to comparative health and having remained for years without relapse. On account of the prime importance of conserving the digestive capacity of these patients, he invariably gives the remedy hypodermically according to the following formula:

Guaiacol.....	20 Gm. (5 dr.)
Eucalyptol.....	10 Gm. (2½ dr.)
Sparteine Sulphate.....	1 Gm. (15 grn.)
Oil Sweet Almonds } q. s. ad }	.....200 Cc. (6 fl. oz.)

Two Gm. (30 grn.) of iodoform may be added to the other ingredients. The first injection, made while the patient is in bed, should not exceed ½ Cc. (8 min.), but, later, gradual increase to a maximum of 6 or 7 Cc. should follow, signs of intolerance being closely watched for. The author states that within five minutes, or even less, after receiving an injection, the patient will experience the characteristic taste and odor of the eucalyptol or the iodoform if the latter substance is used.

**Anti-tetanic Serum** is reported by Dr. Thos. H. Stucky,<sup>2</sup> of Louisville, Ky., to have cured two cases of traumatic tetanus. In the first patient, a boy of ten, the initial symptoms developed just one week after a toy pistol wound of the thumb. Roux's serum was used, and the injections were given at intervals of about six hours for a week, at the end of which period he had received twelve bottles without any apparent improvement. Chloral and bromide were also administered and induced some sleep, but were not otherwise effective. Treatment was continued with P. D. & Co.'s serum, which seemed to be more efficient, but the spasms and rigidity did not entirely subside till the end of the fourth week. In the second case, a boy of fourteen, shot between the great and first toe, symptoms developed on the fifth day. Thirty Cc. of the serum were given at intervals of four hours for eight injections,

after which the spasms and rigidity began to relax and progressive recovery followed, so that within ten days the boy was out playing. The author states in conclusion that he believes the serum to be of the greatest value, but that it must be given as long as active muscular rigidity continues and in amounts proportioned to the intensity of the infection. He also recommends the use of chloroform, morphine and chloral according to the exigencies of the case.

**Tannigen** is commended by Dr. Charles M. Clark,<sup>1</sup> of Chicago, who first used it in case of tubercular diarrhea which had resisted all the approved remedies. The drug was given in doses of 10 grn. every two hours, combined with sodium bicarbonate, milk-sugar and powdered ipecac. Under this treatment, the previously watery movements gained in consistency and diminished in frequency from one every hour or two to two a day. Since the above experience the doctor has, in all cases of watery discharge from the bowels, used tannigen combined with bismuth subcarbonate and resorcin. In leucorrhea he obtains favorable results from the following:

Tannigen....	1 dr.
Boric Acid.....	2 dr.
Zinc Sulphate.....	10 grn.
Fluid Ext. Hydrastis.....	2 fl. oz.

Dissolve in cup of hot water and add to 3-quart fountain syringe filled with water as hot as can be borne. Use injection at bedtime and in recumbent position with an obturator pipe.

**Iron Albuminate** is favorably spoken of by Dr. Julius Pollak,<sup>2</sup> who reports good results, in the *anemia* of phthisical patients, from the use of an albuminate of iron known as ferson. He gave the remedy to fifty patients, whose symptoms were well marked, accompanied by decided failure of appetite and often by headache, probably of anemic origin. With three exceptions, all took it well, suffering no disturbance whatever of the digestive tract. The usual dose, three times daily, was about 2½ Gm. (45 grn.) given at first in a glass of milk one-half hour before meals, but later stirred into the soup or coffee at meal time. After three or four weeks of this treatment, the hemoglobin showed an average increase of about ten per cent., which advanced to fifteen or twenty a month later. In most cases, there was a parallel improvement of

<sup>1</sup>*Trib. méd.*, XXXIII, p. 431.

<sup>2</sup>*Am. Pract. and News*, XXIX, p. 441.

<sup>1</sup>*Ther. Gaz.*, XXIV, p. 372.

<sup>2</sup>*Wien. klin. Woch.*, XIII, p. 575.



appetite and gain of weight. One important advantage of the drug, to which he directs attention, rests on the fact that it passes through the stomach unaltered, but is very readily absorbed in the intestines.

**Earache** caused by incipient inflammation of the middle ear should be treated, according to Dr. W. H. Wakefield,<sup>1</sup> of Charlotte, N. C., by active purgation and continuous local application of heat. Internally he gives, every two or four hours, from two to twelve drops of a mixture of tincture of belladonna leaves and tincture of aconite root in the ratio of five parts of the former to three of the latter. The local application of heat he follows by filling the ear with a ten-per-cent. solution of carbolic acid in glycerine. If these measures do not relieve the pain, he resumes the application of heat and gives a full dose of paregoric. Sometimes he obtains relief by a five to ten per cent. solution of cocaine dropped into the ear hot. In tympanic neuralgia he finds dry heat to be the most efficient remedy, but often uses cocaine as above or applies it to the drum membrane in the form of a ten-per-cent. ointment with lanoline. The same ointment is used when the pain is due to a furuncle forming in the wall of the canal. After the boil "breaks" or is incised, the ear should be cleansed twice daily with hydrogen peroxide, boric acid should be dusted in and then a salve of vaselin, containing 1 grn. of the yellow oxide of mercury to the dram, should be applied for the purpose of preventing a recurrence.

**Acute Dysentery**, as treated by Dr. Geo. A. Huntley,<sup>2</sup> is managed mainly by a reliance on purgatives and enemata, to the exclusion of astringents. He requires the patient to maintain the recumbent posture and advises him to restrain as far as possible the desire to go to stool. The salines are given in dram doses, frequently repeated, or mercurial purgation may be substituted. Salol should be given in doses of 10 grn. every four hours for adults and it may be advantageously combined with calomel, especially in the treatment of children. After the discharges become feculent and cease to show blood and mucus, purgatives should be discontinued in favor of intestinal antiseptics, of which the best are bismuth salicylate and salol. If these fail to change the character of the stools after a fair trial, ipsecac should be given, either in large doses of 30 or 40 grn., or in smaller doses of  $\frac{1}{4}$

grn. every half hour. However, the author is not very enthusiastic over this last drug.

After each evacuation, the bowel should be washed out with from 3 to 6 pints of warm water containing one part or less of quinine to the thousand, or boric acid or potassium permanganate may be used instead of quinine. The injection should be given slowly through the long rectal tube, the patient being in the dorsal posture with the hips elevated. Sometimes a cocaine suppository or a small preliminary injection of a 4 per cent. solution of cocaine is necessary in order to overcome tenesmus.

**Heart Diseases** in childhood is the subject of editorial discussion in a contemporary,<sup>1</sup> in which attention is called to the fact that, on account of the paucity of symptoms, there is little occasion for medication, our remedies being powerless to cure the organic lesion. Of palliative measures, the first place is given to rest, enforced if necessary; an hour of complete repose, two or three times daily, is strongly urged. As light bodily weight is advantageous to a diseased heart, the avoidance of fat-producing foods is next advised. Over-eating is another danger to be prevented. As improvement of the blood is frequently of prime importance, the administration of arsenic, with or without iron, according to circumstances, is recommended, as is also corrosive sublimate in doses of  $\frac{1}{500}$  grn. three times daily. The usefulness of calomel or blue mass in relieving congestion of the portal circulation is likewise pointed out. Where there is a strumous tendency, syrup of the iodide of iron is advised. In some cases bitter tonics are beneficial. The use of digitalis is generally, though not invariably, condemned. On the other hand, excellent results are said frequently to follow the administration for considerable periods of time of one or two minims of the tincture of strophanthus, twice or thrice daily. Alcohol is considered to be rarely indicated. The continued employment of strychnine is deprecated, although its value in an emergency is admitted.

**Tic Douloureux** is reported by Dr. Brooke M. Anspach,<sup>2</sup> of the University Hospital, Philadelphia, as successfully treated with salicylates. The patient was a woman of fifty-eight, with rheumatic family history. Her first attack, ten years previous, had recurred at intervals in spite of treatment until finally relieved by sec-

<sup>1</sup>*Carolina Med. Jour.*, XXIII, p. 237.

<sup>2</sup>*Jour. of Trop. Med.*, II, p. 282.

<sup>1</sup>*Ther. Gaz.*, XXIV, p. 377.

<sup>2</sup>*Univ. Med. Mag.*, XIII, p. 286.

tion of the nerve. When admitted to the hospital, she had been suffering constantly for nine months, and the affected region was decidedly hyperesthetic, so that the slightest irritation of it, even by a blast of air, would induce a paroxysm. No local structural changes could be detected, but the general condition was bad. There was no improvement during the first week, when the treatment consisted of rest in bed, forced liquid diet, tonic doses of iron and arsenic, and gradually increasing doses of strychnine until the full physiological effect was manifested. Without altering the hygienic and dietetic measures, the strychnine was then reduced to the ordinary dose and, on alternate days, there were given 90 grn. of the mixed salicylates of ammonium and strontium, 2:1; the heart was supported by digitalis and Huxham's tincture with sweet oil was ordered at meal times. Decided improvement was observed in three days, the hyperesthesia having largely subsided and the frequency of the paroxysms having diminished by one-half. By the end of a week, the patient was free from pain and able to sleep all night; she bore the medication well and was bright and cheerful. When discharged, forty-six days after admission, she had gained ten pounds, had had no attack of neuralgia for two weeks, and was able to bear with impunity forms of irritation which had previously caused her agony.

**Blackwater Fever** and its treatment are discussed by Dr. David K. Cross,<sup>1</sup> of Blantyre. Although not prepared to accept the theory that this disease is caused by over-indulgence in quinine, he is satisfied that the drug is absolutely valueless or even positively injurious in the treatment. His recommendations are that upon the first appearance of symptoms indicating an attack of blackwater fever, the patient should at once go to bed, keep the skin warm and moist, and drink freely of a decoction made by boiling for one half hour three cupfuls of water containing one sliced lemon, then straining and sweetening. The diet should be restricted to milk. Hot fomentations should be applied every half hour over the kidneys, liver and spleen. For vomiting, mustard should be applied to the epigastrium and 2 drops of liquor arsenicalis given internally each hour; ipecac in  $\frac{1}{4}$  grn. doses or 4 or 5 min. of the wine may be effective. Sometimes cocaine relieves the vomiting, but often nothing succeeds but the hypodermic injection of morphine, which de-

mands the greatest care on account of the brain and kidney involvements. For the relief of the liver, copious purgation is produced by the administration of 5 grn. of calomel and 15 grn. of jalap, followed in a few hours by an ounce of magnesium sulphate. Pig's bile is then administered in tabloids, 3 every three hours. For the relief of the kidneys, oil of turpentine is given in 10 drop doses every three hours until the urine clears. To avoid the danger of relapse, the patient should remain in bed and keep warm for at least three weeks. After the urine clears, the following prescription is advised:

Quinine Bisulphate.....	24 grn.
Dilute Sulphuric Acid.....	2 drops
Fowler's Solution.....	2 drops
Potassium Chlorate.....	2 drops
Tinct. Iron Perchloride.....	4 drops
Water.....	to make 12 oz.

A tablespoonful in a wine glass of water three times a day after food.

**Chronic Purulent Otorrhea** is treated by Dr. Carle L. Felt,<sup>1</sup> preferably by powders, as opposed to solutions, after the discharge becomes slight. When it is profuse, he advises syringing the ear thoroughly, two or three times daily, with a very warm antiseptic solution, such as a two-per-cent. carbolic. Once every day or two the ear should be mopped dry after the syringing and a dry antiseptic powder should then be blown in, care being taken not to pack the canal and thus block free exit for the discharge. Iodine-bearing powders are recommended as most satisfactory in the treatment of the affection under consideration, and, of these, the author has been most pleased with iodomuth, which contains twenty-five per cent. of iodine in combination with bismuth. Its advantages, as stated by him, are that it is odorless, impalpable and non-caking, that it is germicidal and stimulating through its iodine, and that it is locally sedative through its bismuth.

**Cancer** has been treated by Dr. Joboulay,<sup>2</sup> of Lyons, with daily hypodermic injections containing from  $\frac{1}{2}$  to 1 Gm. (8 to 15 grn.) of quinine bichloride, on the assumption that the probable cancer parasite belongs to the protozoa, to which quinine is an active poison. One case, afflicted with recurrent carcinoma of the right breast, extensive involvement of the neighboring gland, and a badly swollen arm, began to improve by the end of a week and, at the end of twenty

<sup>1</sup>N. Y. Med. Jour., LXXI, p. 995.

<sup>2</sup>La Sem. méd., XX, p. 206.



days, the swelling of the arm had entirely subsided, only two or three movable glands could be felt, and the tumor of the breast had shrunk to one-quarter of its previous size. Another woman, with a cancer of the uterus which had perforated the bladder, was relieved by the third day and was able, for the first time in six months, to enjoy a night's sleep. The third case was a cancer of the breast with involvement of the axillary glands and signs of a secondary tumor at the base of the brain. After a dozen injections, the brain symptoms had disappeared completely and the primary tumor had diminished a third.

**Acidity of the Urine**, the teachings of M. Joulie as to the correct method of determining which he accepts. Dr. Cautru<sup>1</sup> decides, contrary to the usual belief, is uncommon in the great majority of those suffering from arthritis, rheumatism, eczema, diabetes and neurasthenia, urine of less than normal acidity being the rule in these cases. To overcome this deficiency, he has been led to employ phosphoric acid in doses of 10 to 100 drops daily. This high dosage seldom produces disturbances, even when continued for months, the most unfavorable subjects being those affected with gastritis. In many affections other than those already enumerated, the doctor finds that grave symptoms are almost always accompanied by subacidity of the urine, and that they are ameliorated by the administration of large doses of phosphoric acid. To mask the taste, he gives the remedy in combination with phosphate of soda in the following proportions:

Phosphoric Acid.....2 oz.  
Sodium Phosphate.....4 oz.  
Water.....2 pints

**Tetanus** and its treatment by antitetanic serum is the subject of a report by Dr. H. L. Van Natta,<sup>2</sup> of Seal, O., who reports the recovery of a case under the influence of the serum, although the first injection was not given until several days after the development of the initial symptoms. The patient, a girl of five, received a penetrating wound in the sole of the foot from a rusty nail. Four days later she experienced some difficulty in masticating, and, on the following day, she was feverish, while the rigidity had extended to the back of the neck. She was given 2 grn. of chloral and bromide, small doses of quinine and 5 min. of tincture of passiflora every

two hours. Three days later, the symptoms having become worse, the bromide and chloral were increased to 5 grn. every two hours and morphine was given in sufficient quantity to control pain. Four days later, her condition having become critical, the bromide was increased to 10 grn. and the chloral to 8 grn. every two hours, with free alcoholic stimulation. Nevertheless, she grew steadily worse till the third day following, when the delayed antitoxin<sup>3</sup> at last arrived, and she received 10 Cc. below the scapula. Within an hour she fell asleep and remained somnolent for three hours, when another injection of 10 Cc. was given. Two hours of good sleep followed, and, shortly thereafter, decided improvement in all her symptoms was observed. The third injection was given fifteen hours after the second, by which time there was general relaxation except from the knee to the foot on the wounded side. With this exception, apparent improvement continued for three days, when a relapse suddenly developed. Three injections at intervals of eight hours were sufficient, however, to re-establish convalescence, which was not subsequently interrupted. For a month after the child returned to play, there was more or less clonic spasm in the wounded foot. From the history of this case, the author draws the conclusion that the administration of the serum should be continued, at intervals of eight hours, until the temperature becomes normal.

**Typhoid Fever** is the subject of a contribution by Dr. D. E. English,<sup>1</sup> of Millburn, N. J., who states the indications for treatment as follows:

1. To empty the gut of all infected matters as soon as possible.
2. To render the gut as nearly as possible uninhabitable by the microbes.
3. To prevent, as far as possible, further absorption of the poison.
4. To neutralize or expel the poison already absorbed.
5. To keep the temperature within safe bounds.
6. To prevent, so far as possible, overaction of organs already damaged, *i. e.*, to promote physiological rest, and avert rupture of the intestine.
7. To support the strength of the patient and guard against sudden collapse.

The first indication he meets by a dose of calomel, 10 to 30 grn., followed, if necessary, by magnesium sulphate in boiled water. For the second indication, the patient is placed on an exclusive diet of dissolved

<sup>1</sup>Bull. Gén. de Thérapeut., CXXXIX, p. 732.

<sup>2</sup>Ther. Gaz., XXIV, p. 375.

<sup>3</sup>Med. Record, LVII, p. 1120.



beef, made after Weir Mitchell's formula, which is entirely absorbed by the stomach, leaving no débris to pass into the intestine. At the same time, the bowels are moved once or twice daily, preferably by means of podophyllin,  $\frac{1}{8}$  to  $\frac{1}{4}$  grn., night and morning, to which may be added aloin in equal dose. The third indication is met by the administration of carbolated camphor in doses of 6 min. four times daily, or oftener at first, the urine being watched for the appearance of the changes in color and odor characteristic of carbolic acid intoxication. Large and frequent draughts of sterile water are recommended as best meeting the fourth indication. When the foregoing measures have been carried out, the fifth indication is said to need little or no consideration as a rule. However, should the temperature rise above 103° F., the administration is advised, every hour or two for five or six doses, of a tablet containing 3 grn. of acetanilid and  $\frac{1}{2}$  grn. each of camphor monobromate and caffeine citrate. To meet the sixth indication, the recommendation is to keep the patient quiet, avoid over-feeding, and guard against tympanites, using, if the carbolated camphor is insufficient, a little oil of turpentine or compound tincture of cardamom; or a turpentine stupe may be employed. The rare occurrence of diarrhea is met by  $2\frac{1}{2}$  grn. doses of Dover's powder, as few as possible. For the seventh indication, the diet list may be cautiously enlarged in the third week by the daily addition of a pint of milk, well diluted, and one raw egg beaten up with lemon juice. In the fourth week, still further additions may be made, according to circumstances.

Cases seen early and treated in this manner will, in the doctor's opinion, nearly all recover without excessive prostration or emaciation, and will seldom develop any embarrassing complications or sequelæ.

**Ringworm of the scalp** is managed by Dr. W. Allan Jamieson,<sup>1</sup> of Edinburgh, in the following manner: After discussing and condemning with faint or no praise various methods of treating this disease he says that the hair must be removed from the entire scalp, which must then be kept bare by means of a razor or curved scissors until the cure is complete. Twice daily the scalp must be washed with a fluid, superfatted potash soap and warm water, the soap being poured on a piece of wet flannel and applied with moderate friction. After

the washing the affected area should be rubbed carefully and slowly for ten minutes with an ointment containing 1 dr. of precipitated sulphur and 10 grn. each of salicylic acid, beta-naphthol and ammoniated mercury, to the ounce of lanolin or vasogen. Thymol may be substituted for the naphthol or a salve of oleate of copper, 25 or 50 grn. to the ounce, may be used.

**Puerperal Eclampsia** is treated with diuretic infusions by Dr. Robert Jardine,<sup>1</sup> who bases his recommendation on twenty-two cases so treated, with but five deaths. Other measures were, of course, not neglected. For the control of the actual convulsions recourse was had to chloroform, veratrum viride, chloral and bromide. Free action of the skin was secured by means of a hot pack or steam bath. The bowels were opened with magnesium sulphate, given through a tube when necessary. On account of the slow action of diuretics administered per os, injections were made, under the breast generally, of from one to three pints, each containing 1 dr. each of potassium bicarbonate and sodium chloride; or the potassium salt may be replaced by sodium acetate in equal amount. The injection may be repeated if necessary. The author claims a distinct diuretic effect from these injections, and also that the urine passed subsequent to their use showed increase of urea and uric acid.

#### Publications Received

ON RADICAL OR TENTATIVE TREATMENT OF PILES. By Thos. Manley, M.D., New York. Reprinted from the *Medical Brief*, April, 1900.

THE THERAPY OF FEMININE HERNIA IN THE ADULT. By Thos. Manley, M.D., New York. Reprinted from *The Therapeutic Gazette*, February 15, 1900.

PACHYMEINGITIS: REPORT OF A CASE AND AUTOPSY. By Samuel E. Earp, M.S., M.D., and John T. Scott, M.D., of the Central College of Physicians and Surgeons, Indianapolis, Ind. Reprinted from *Med. and Surg. Monitor*, May, 1900.

GASTROSTOMY FOR TRAUMATIC STRICTURE OF THE ESOPHAGUS: REPORT OF A CASE. By George Ben Johnston, M.D., Richmond, Va. Reprinted from the *Medical Register*, October, 1899.

TREATMENT OF CANCER OF THE CERVIX OF THE UTERUS COMPLICATED BY PREGNANCY. By George Ben Johnston, M.D., Richmond, Va. Reprinted from the *American Medical Quarterly*, April, 1900.

ANNOUNCEMENT FOR 1900-1901 OF THE CLEVELAND COLLEGE OF PHYSICIANS AND SURGEONS (Medical Department of the Ohio Wesleyan University).

<sup>1</sup>*Edin. Med. Jour.*, VII, p. 547.

<sup>1</sup>*Brit. Med. Jour.*, 2056, p. 1279.

# The Prescription

We wish to have our readers use this department with the utmost freedom. Any question about the prescription or about any substance used in prescriptions comes within its range. We shall do our best to find correct answers for all, and if we fail for lack of information at hand, some one of our readers may be able to give the right reply. On questions of therapeutics or practice we shall not attempt to give any opinions of our own, but find for the questioner what the best available authorities on such subjects have to say upon them. Let every reader resolve his doubts about compatibilities, doses, latest remedies, best methods of administration, dangers of remedies, etc. Send in favorite prescriptions and let others be benefited by what you have discovered. We shall give full credit for all such information. As some persons do not care to have their names appear as the authors of queries, we will refrain from giving names in this connection when requested to do so. Sometimes it is an advantage to have the writer's name published, and in such cases we hope that overdifidence will not interfere with the right.

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S. J. W., of Michigan, makes the following enquiries: (1) If a sufficient amount of formaldehyde to disinfect a room is sprayed or sprinkled in the room, how long would it retain sufficient strength to destroy germs? Must the supply be kept up for several hours to be effective, and if so how long and why? (2) What evidence is there that antitoxin which contains no carbolic acid, creosote, or other antiseptic possesses any curative properties? Has it ever been demonstrated clearly and beyond a doubt that the serum, in and of itself, has any power to cure disease? (3) What causes that form of fermentation produced by the yeast plant? Is it due to the unstable condition of the cell by which its molecules already undergoing change are capable of imparting the same kind of change to substances with which it is in contact? (4) In what way do germs produce putrefaction and how do they form pus? (1) The air in a room is constantly changing by air-currents and by diffusion. This change of air soon carries away all of the formaldehyde from the room, and from the moment it is placed begins to weaken its power as a disinfectant. Being volatile it is carried away by currents and diffusion. If enough is sprayed or sprinkled in a room its action is so quick, under favoring conditions, that it has accomplished its work before complete diffusion. All moist germs should be destroyed in a close room within half an hour if the walls, furniture, and floor have been well sprayed and the room vacated and closed! If the room is kept open a continuous supply must be maintained by using a lamp to evaporate. The length of time depends upon so many conditions that it is impossible to approximate in a way that will cover all cases. The strength of the solution used, the moisture or dryness of the air of the room and of its contents, the character of the walls as aiding or hindering diffusion, the temperature of the air, the ventilation, etc., are all factors that must be considered. (2) The reports of the first experiments per-

formed with antitoxin indicated that the experimentors used perfectly pure and antiseptic-free antitoxin. It was only when they were compelled to keep it that antiseptics were used, and then they had to determine if the antiseptic would destroy its curative properties. On finding that it would not, they were able to send it out as a commercial article. A study of the results of the use of antitoxin, as shown by various articles that have from time to time appeared in the ARCHIVES, will show Dr. W. that no such effects could in any degree be accounted for by the use of creosote, carbolic acids or other such remedy. (3) The latest discovery in the chemistry of the yeast plant indicates that it probably produces an enzyme that is responsible for the conversion of the sugar into alcohol. Just as pepsin is secreted by our stomachs, and just as this pepsin converts albumin into peptone, so the yeast cell produces its enzyme and the enzyme converts the sugar into alcohol. The exact method by which an enzyme converts one chemical body into another different one without itself appearing to be destroyed in the action is still a matter of doubt. The evidence is all against the supposition that the cell itself by its instability imparts change to substances with which it comes in contact. Such a theory, though once reasonable so far as the facts then known are concerned, is now no longer tenable. (4) Putrefaction is caused by a successive series of germs acting upon a putrefactible body in, probably, some such manner as the yeast cell acts upon sugar. The picture is better brought out by taking starch and noting its conversion into sugar by plants, animals, or germs producing diastase, the sugar being converted into alcohol by the enzyme of the yeast plant, and the alcohol being changed into vinegar by the vinegar plant, through its enzyme. Pus is caused by the rush of phagocytes and other leucocytes to a region inflamed by the poisons secreted, usually by micrococci. The destruction by the poison of the white cells and their

accumulation, together with the accumulation of the micrococci, constitute what we call pus.

**Dr. A. M. Cross**, of Crawford, Nebraska, says: "Am using Dionin at present in a case of uterine cancer, and find that it quiets the terrible pain of this trouble, at the same times produces sleep without any of the unpleasant effects coincident with the use of morphine."

**D. B. F.**, of California, wishes to know the best preparations for malarial fever, chronic urethritis, chronic bronchial asthma, dandruff, chronic rheumatism, fermentation, intestinal dyspepsia, and for clearing up the tongue in fevers. The latest and best treatment for malarial fever is euquinine, a tasteless form of quinine. It produces practically no cinchonism and none of the distressing symptoms that large doses of quinine give. In chronic cases the new arseno-ferric mineral water called Levico is of great service in acting as a synergist with the euquinine. For chronic urethritis injections of from 55 to 100 per cent. of ichthylol is the latest successful remedy. For chronic bronchial asthma one of the best remedies now used is a 10 per cent. solution of menthol in chloroform. A few drops are placed upon the palm of the hand and inhaled by the mouth and nares, care being taken to keep it away from the eyes. For dandruff apply twice a day a 20 per cent. solution of chloride of sodium, use a scalp brush freely, and at night use a 10 per cent. solution of ichthylol containing a drop of oil of rose to each two ounces. For chronic rheumatism give salicylate of magnesia three times a day in 20-grn. doses, see that the patient is put upon cathartic remedies and apply on the inflamed joints ichthylol 3, methyl salicylate 2, and lanum 10. For fermentation have the patient frequently skip a meal or even two, administer dram doses every hour or two of lime water containing 2 drops of creosote to the ounce. For intestinal dyspepsia give a 5-min. capsule of ichthylol one hour before each meal and 3-grn. doses of diastase with the meal. For clearing off the tongue in fevers the old-fashioned treatment of giving small doses of calomel is still much used. In many such cases an orexoid three times a day will prove effective. If the fever is high thalline sulphate in doses of from one-quarter to 2 grn. will be valuable. Be sure and see that the druggist does not mistake this for thallium sulphate, which is a totally different thing.

### Elixir Terpin Hydrate and Dionin.

—In answer to S. E. F.'s request for a formula for Elixir Terpin Hydrate and Dionin, the following is suggested as furnishing a stable compound:

Terpin Hydrate.....	16 grn.
Dionin.....	2 grn.
Alcohol .....	5 fl. dr.
Glycerin.....	10 fl. dr.
Ext. Vanilla.....	1 fl. dr.

Each teaspoonful (1 fl. dr.) represents one grn. of Terpin Hydrate and  $1\frac{1}{2}$  grn. of Dionin.

The following list of seasonable prescriptions have been culled from the pages of our exchanges, and no doubt some of them will prove of service to our readers by suggesting some line of treatment that otherwise might be overlooked by them.

#### Sunstroke:

Spirit Glonoin.....	2 drops.
Water.....	1 fl. oz.

Teaspoonful every quarter of an hour till symptoms disappear. Apply arnica compresses to the head.

—*Riforma Medica*.

#### Gastro-Intestinal Catarrh:

Tinct. Calumba,	
Tinct. Cascarilla.....	of each 1 fl. oz.

Twenty drops four or five times a day in all cases where opium is contraindicated.

—*LIEBREICH, Semaine Medicale*.

#### Acute Gastro-Enteric Infections:

Tinct. Iodine.....	15 to 18 drops.
Simple Syrup.....	5 fl. dr.
Distilled Water.....	to make 5 fl. oz.

Tablespoonful every two or three hours.

—*GROSCH, Medical Record*.

#### Infantile Gastro-Enteritis:

Emulsion Castor Oil .....	6 fl. oz.
Oil Peppermint.....	3 drops.
Oil Cloves.....	5 drops.
Tinct. Iodine.....	10 drops.
Chloroform.....	2 drops.

Teaspoonful every hour. Keep on ice.

—*BIZINE, Columbus Med. Jour.*

#### Cholera Infantum:

Salol.....	3 grn.
Pepsin,	
Pancreatin.....	of each $2\frac{1}{2}$ grn.
Bismuth Subnitrate.....	3 grn.
Extract Nux Vomica.....	$\frac{1}{2}$ grn.
Sodium Bicarbonate.....	6 grn.
Powdered Ginger.....	$1\frac{1}{2}$ grn.

Make 12 powders and give one every two hours, alternating with 30 grn. of Chalk Mixture.

—*TROBRIDGE, Buffalo Med. Jour.*



# Book Notices

THE CLINICAL EXAMINATION OF URINE, WITH AN ATLAS OF URINARY DEPOSITS is intended by its author, Lindley Scott, M.A., M.D., to be a ready reference handbook, and it fulfils his expectation admirably. The book consists, as its title indicates, of two parts—the first a reliable guide to the recognition and estimation of both normal and abnormal constituents of the urine, and including only those tests which the author has found in practice to be the most trustworthy; the second an atlas of urinary deposits, drawn, with one exception, from specimens under his own microscope, and arranged in such a way as to portray their distinguishing characteristics. The atlas takes up by far the greater part of the book, and is so divided that each plate has its description on the opposite page—an advantage too obvious to call for further notice. The majority of the plates are colored, and all are well drawn. The book is of such a shape that it will stay open wherever desired, and is altogether worthy of attention. (Philadelphia: P. Blakiston's Son & Co., 1012 Walnut St. Price \$5.)

A SECOND edition of Dr. John D. Deaver's treatise on "Appendicitis," illustrated with 22 full-page plates, and containing 300 pages, 6x9, has been published by P. Blakiston's Sons & Co., 1012 Walnut st., Philadelphia. When Dr. Deaver's book first appeared it immediately won for itself a leading position in the literature of this subject. The second edition has been virtually rewritten, and much new matter incorporated in each chapter. The substitution of a series of plates to illustrate the microscopic lesions of the different varieties of appendicitis in place of a number of plates in the first edition intended to illustrate various steps in the operation for the removal of the appendix, is doubtless an improvement. The author has certainly prepared a work which will prove a reliable guide to the general practitioner in the presence of the most serious of all acute abdominal affections, and of disorders that more or less resemble it. The work should be in every doctor's library. (Philadelphia: P. Blakiston's Son & Co., 1012 Walnut St. Price \$3.50 net.)

ONE of the most interesting publications which have been donated to the literature of medicine in late years is "A MANUAL OF MEDICINE," edited by W. H. Allchin, M.D. (Lond.), F.R.C.P., F.R.S.E., senior physician and lecturer on clinical medicine, Westminster Hospital; examiner in medicine in the University of London, and to the Medical Department of the Royal Navy. This book constitutes Vol. I, of Macmillan's Manuals of Medicine and Surgery, and is encyclopedic in character.

It deals principally with the infectious, which are defined as follows: "The infections, or specific infective fevers, form a group of maladies which result from the introduction into the body by wounds, by the air passages, or by the alimentary tract, of specific bacteria, each specific infection being the result of the action of a special microbe or its poisons on a certain tissue, or group of tissues." Grouped under this definition, and under the sub-head of fever are forty-six different diseases, which include such affections as boils and carbuncles, erysipelas, sapremia, septicemia and pyemia, infective endocarditis, gonorrheal infection; such diseases as typhoid fever, cholera, etc.; and the exanthemata, syphilis, tuberculosis, influenza, leprosy, malaria, etc. Judging from the character of Vol. I, and the scope of these manuals indicated by the introduction and classification, this series promises to be of unusual interest and importance. The paper and typography, illustrations and binding, are of the grade of excellence which distinguishes the output of the Macmillan Company. (New York: The Macmillan Co., 66 Fifth Ave. 442 pp. Price \$2.00.)

DIE ROHSTOFFE DES PFLANZENREICHS, by Dr. Julius Wiesner, parts II and III, have just been published. In the May issue of the ARCHIVES we had occasion to treat of part I. The parts just received are in nowise inferior to part I, and exhibit a wealth of minute detail in the treatment of the subject matter which will give the greatest satisfaction to all having occasion to consult the work. These two parts are devoted to the conclusion of the chapters on resins, and to the discussion of the caoutchouc group, opium, aloes, indigo, the catechu group, and partly to fatty plant substances. In all cases the chemistry and physiological characteristics, as well as the botany, is thoroughly gone into. The work is an unquestionable success. (Leipzig: Wilhelm Engelmann. Price, each part, 5 marks).

No memorial could be more appropriate to William Pepper than the splendid series of investigations entitled CONTRIBUTIONS FROM THE WILLIAM PEPPER LABORATORY OF CLINICAL MEDICINE which has recently been published by the University of Pennsylvania, on the Phoebe Hearst foundation. The work comes to us in paper covers, but is well worthy of a more durable binding. It is printed on fine calendered paper, in the clearest of type, and the plates and illustrations are of superior excellence. The text includes 478 pages of valuable matter representing original investigation in the William Pepper Laboratory.

# COLLECTIVE INVESTIGATION

*Under this head will be published the experiences had by clinicians and practitioners with new or old remedies of unusual interest by whomsoever made*

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## Tannalbin

(Tannin Albuminate Exsiccated, Knoll)

### AN ORGANIC INTESTINAL ASTRINGENT

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#### Introductory

**T**ANNALBIN is a form of tannin albuminate, introduced by Prof. R. Gottlieb, of the Pharmacologic Institute of the University of Heidelberg. It is obtained by heating freshly prepared albuminate of tannin at 110° or 120° for five or six hours until it is rendered insoluble in the gastric juice.

*Description.*—Tannalbin occurs as a light-brown, odorless, tasteless, permanent powder; it contains 50 per cent. of tannic acid combined with egg albumin, and is insoluble in water and in acid fluids.

*Medical Properties and Uses.*—Tannalbin, unlike tannic acid, does not precipitate pepsin, coagulate albumin, or impair the digestion. According to the text-books, when tannin itself is taken into the stomach, a part of it unites with the pepsin and albumin present, while a part is converted into gallic and pyrogallic acids, and in these forms it is both absorbed and excreted. The theory (drawn from the following authorities) of the action of tannalbin which differentiates it medicinally from tannic acid is as follows: Tannalbin, being insoluble in the gastric juice, apparently passes through the stomach without the above reactions having occurred. Arriving in the duodenum, tannalbin meets with the alkaline secretions of that portion of the bowel and is dissolved, and the digestive action of the pancreatic juice commences its action upon the albumin constituent, gradually setting free the tannin to act as an astringent throughout the entire intestinal tract. Thus set free, the tannic acid produces its characteristic action on the contents of the bowels, and on the

walls of the intestinal canal. It coagulates the mucus, precipitates the ptomaines resulting from bacterial action and the fermentation and decomposition of food, constricts the intestinal walls, and empties the capillaries. These facts explain in part its remedial virtues in the treatment of certain diarrheas. It removes the cause of the diarrhea by depriving the bacteria infesting the intestinal tract of pabulum for their continued existence, renders the toxic ptomaines resulting from bacterial action inert by forming practically insoluble tannates with them, and acts as a local astringent and healing agent upon the irritated mucous membrane of the intestines. Thus, it is said, tannalbin acts indirectly as a disinfectant, overcomes putrefaction, and removes the tendency to undue acidity from fermentation.

Tannalbin has been recommended in the treatment of those forms of diarrhea in which astringents are indicated, such as *acute intestinal indigestion* after the bowel has been emptied by an enema or quick cathartic; *intestinal catarrhs*, both acute and chronic, employed in conjunction with proper diet alone or with other remedies; *intestinal affections of children* in hot weather; in *phthisical diarrhea*, and in diarrheas of the *serous or atonic* type.

*Dosage.*—The adult dosage, owing to the innocuousness of the drug, is not confined within any very exact limits: indeed, a maximum dose, on the basis of physiological limits, has not yet been established by any detrimental experience. As much as 2½ dr. (10 Gm.) daily has been given continuously for days in succession by several authors, with wholly beneficial effect; but

in the ordinary run of practice 45 to 90 grn. (3 to 6 Gm.) per day, in 15 to 30 grn. (1 to 2 Gm.) single doses, evenly distributed, has mostly been found sufficient for adults. In urgent acute cases a more frequent repetition (in 2-hourly or even 1-hourly intervals) has proved useful for promptly creating the first impression, the frequency being usually diminished as soon as the dejections are seen to improve and their number to decrease. In such cases manifest improvement is noticed often within a few hours from the beginning of treatment. In most of the chronic classes of cases, it has been advised that treatment should continue for a time after the normal function of the intestine is re-established, to guard against any relapse.

The doses for *nurslings* are mostly stated to be from 5 to 8 grn. (0.3 to 0.5 Gm.); for children, varying with age, up to 15 grn. (1 Gm.). The principles of initial frequency of dosage in urgent acute cases, and of continuance after a cure has been established in long-standing chronic cases, apply here as they do for adults.

*Administration.*—Tannalbin, being a tasteless, odorless, and insoluble powder, its administration by mouth is, in adults, most readily performed by taking the powder dry on the tongue, and washing it down with a draught of some liquid. Its lightness prevents its being easily stirred up with milk or sweetened water for children; but it will mix well enough with any viscid menstruum, such as syrup, honey, gruel, or mucilage. It likewise may be advantageously prescribed in cachets.

### Some Points on Treatment of Diarrhea

*Preparatory Treatment.*—In the diarrhea of indigestion and in dysentery, modern treatment aims at destroying or eliminating the toxins and rendering the digestive tract aseptic. While it may not be possible to entirely accomplish this, yet, by the use of purgatives, antiseptics, and special diet, the number of germs infesting the alimentary canal may be greatly reduced, and their activity inhibited. André Martin,<sup>1</sup> Surgeon-

Major in the French army, in a paper on the "Treatment of Acute Dysentery," calls especial attention to the experiments of A. Gilbert and S. A. Dominici in this connection. These investigators demonstrated that a purgative of four drams each of sodium sulphate and magnesium sulphate reduces the proportion of bacteria in the alimentary tract from 12 billions to 1 billion in a period of twenty-four hours. Martin also calls attention to the experiments of Grasset and Robin, who were enabled to show that a milk diet reduced the bacteria of the intestinal canal from 12 billions to 164 millions, seventy-three fold; but it was accomplished more slowly. Taking these and like facts into consideration, modern authorities insist that, as a rule, purgation should form the preliminary treatment of diarrheas due to indigestion and decomposition of food in the intestines; and that purgation and a milk diet should form the basis of a rational treatment of dysentery.

*Theory Regarding the Use of Tannalbin.*—The theory is that tannalbin plays the part in drug therapy of diarrhea that tannic acid would play if it could arrive at the seat of the disease without first spending its action in the stomach. As pointed out by Dr. R. G. Eccles,<sup>2</sup> if tannic acid could be carried down into and through the whole length of the intestinal tract as tannic acid, it would become one of the most important and useful remedies known to science. By its aid all the chief poisonous products of the bowels could be rendered almost harmless, and an intense astringent action maintained at the same time. It is stated by good authority that pathogenic microbes, however virulent, lose part or all of their virulence if freed from their respective poisons, and that if tannic acid which has precipitated albumin is administered to a patient, such tannic acid is not converted into gallic or pyrogallic acid until after the albumin is converted into peptone, when the tannic acid is again able to precipitate toxalbumins or ptomaines.

It has been experimentally found that,

<sup>1</sup>*Bul. gén. de Thérap.*, 1899, No. 22; *Merck's Archives*, II No. 2, p. 57.

<sup>2</sup>*Merck's Archives*, I, No. 1, p. 336.



when tannic-acid-precipitated albumin is dried at a relatively high temperature and converted into a powder, the albumin of this powder cannot be converted into pepsone in any appreciable amount by the gastric juice.<sup>3</sup> As soon, however, as this tannated albumin reaches the pancreatic juice conversion begins. The slow accomplishment of this change allows the conversion to go on for a long distance down the alimentary tract; and as long as this continues, tannic acid, as such, is being freed to act upon the poisons of the bacteria. The precipitation diminishes for the time the absorption of ptomaines and toxalbumins, weakens the resisting power of the germs, and aids the phagocytes in their destruction of them; and the astringent action checks the dialysis of the non-precipitated poisons, and thus gives the system an opportunity to recuperate.

*Tannalbin Used Alone.*—Dr. J. T. Moore,<sup>4</sup> professor of theory and practice, Hamline University, Minneapolis, Minn., in a paper on the treatment of diarrhea, says that in view of his clinical experience: "Tannalbin seems to be as near a specific in selected cases of diarrhea as quinine is for malaria." He reports a number of cases in support of this statement. One case of diarrhea resulting as a secondary affection to aortic aneurism, which had proved intractable to other remedies, yielded to tannalbin in 15 grn. (1 Gm.) doses every 3 hours. Numerous cases of bacterial types were cured by it without other remedies. The diarrhea of typhoid was also controlled by it. In the two cases of phthisical diarrhea which he treated, "the result was all that could be hoped for from any medication."

*Tannalbin Used With Other Drugs.*—The same principles of drug therapy should guide in the use of tannalbin as applied to tannic acid and to astringents and antiseptics in general. Calling attention to so evident a fact may appear unnecessary; but to remove the seeming inconsistency of recommending tannalbin alone as a *specific* for diarrhea, instead of a remedial agent to be

used either alone, or in conjunction with other measures as indicated, attention is here called to the natural limitation of its use. As already stated, according to modern views, astringents and antiseptics in the treatment of diarrhea should usually be preceded by purgation. Martin, the authority above referred to, prefers equal parts of sodium sulphate and magnesium sulphate as a purgative in this connection. Moore<sup>5</sup> prefers castor oil or calomel for infants. He says, "that as infants bear castor oil better than adults, it is usually advisable to give at least two teaspoonfuls. Calomel is best given in doses of at least one-tenth of a grain, in combination with a grain of sodium bicarbonate every half hour until one grain has been given." Opium and its preparations may be indicated for the relief of pain and to induce sleep. Dionin may prove of value as an anodyne. Ginger and other aromatics combined with it may prove of service. The conjoint use of calomel has been highly recommended in some cases. Salol, salicylic acid, naphthol, guaiacol, thiocol, etc., may be indicated in conjunction with tannalbin in cases where marked antiseptic action is indicated; and under these circumstances the efficiency of tannalbin may be greatly increased by such addition.

Dr. L. Rheinhold,<sup>6</sup> of the Children's Clinic of Prof. Vierordt, at the University of Heidelberg, in referring to the use of tannalbin with other drugs, says:

Certain medicaments are at times strongly indicated, which, however, suffer from the drawback of inducing digestive disturbances, especially diarrheas. I have in mind chiefly fatty substances, i. e., cod-liver oil—especially when phosphorized. About 50 children (rachitic cases mostly), who for the above reason could not at all, or but illy, bear the phosphorized oil, bore it excellently when combined with tannalbin. In many of these cases, after this combination had been given for a time, the patients became able to bear the oil well when taken alone.

Dr. N. P. Gundobin,<sup>7</sup> Privat-Dozent at the Imperial Russian Military Academy in

<sup>3</sup>The Treatment of Acute Diarrhea of Infancy, by John Lovett Moore, A.M., M.D., Boston, Asst. Clin. Med., Harvard Med. School, etc. *Boston Med. & Sur. Jour.*, July 29, 1899, p. 101.

<sup>6</sup>*Munch. Med. Woch.*, 1897, No. 36.

<sup>7</sup>*Djetskaja Medicina*, 1897, No. 1.

<sup>3</sup>*Amer. Year Book of Med. and Surg.*, 1897, p. 1143.

<sup>4</sup>*Merck's Archives*, II, p. 47.

St. Petersburg, in referring to the same subject, says:

In rachitis, where we had been compelled to suspend the administration of cod-liver oil on account of digestive disturbances induced by it, the addition of tannalbin permitted the resumption of the former remedy, without further trouble being occasioned.

The following symposium of clinical reports appears to leave no doubt regarding the special advantages of tannalbin as a remedy in the treatment of many forms of diarrhea.

### Clinical Reports on Tannalbin

#### TANNALBIN IN ACUTE, SUBACUTE, AND CHRONIC DIARRHEAS GENERALLY

Prof. William Henry Porter, of the New York Post-Graduate Medical School and Hospital, says:<sup>8</sup>

In the *acute diarrheas* of the adult, tannalbin has proved to be in my hands a very efficient remedy. It is in the *chronic affections*, however, that tannalbin has been the most serviceable to me. This has been exemplified in cases chosen as test-cases on account of their severity and long-standing, and for their having been otherwise treated for a long period unsuccessfully before being placed upon tannalbin.

Prof. Leonard Weber, of the same institution, states (*ibid.*):

For the last two years, in *chronic catarrh of the intestinal tract*, I have scarcely used any other remedy than tannalbin. It is wonderfully well borne by the stomach—better than any other remedy I have ever tried.

Prof. Max Einhorn, of the same place, states (*ibid.*):

I have had very good results from tannalbin in intestinal disorders. In *chronic diarrhea* it has proved particularly useful.

Dr. Hermann T. Wolff, of Marion, Texas, confirms this. He says:

I have found tannalbin superior to any other remedies in irritations or *catarrhal conditions* of the bowels.

Dr. J. T. Moore,<sup>9</sup> professor of theory and practice, Hamline University, Minneapolis, Minn., in a paper on the treatment of diarrhea, says that during the spring and summer of 1899, he used tannalbin in numerous

cases, mostly of digestive and bacterial types. The following cases were reported:

Case I.—Mr. D., suffering from aneurism of ascending aorta, developed symptoms of *catarrhal gastritis* and *enteritis*, due to interference with circulation, causing chronic congestion of the mucosa of the whole alimentary tract. The diarrhea was very intractable, and after using every known remedy without being able to improve the circulation more than temporarily, I at last resorted to tannalbin. This was the first remedy from the use of which I was able to relieve the bowel symptoms. By its more or less constant use, due to its astringent action, the excretion was modified to approximately a normal condition. The vomiting was controlled by large doses of bismuth subnitrate, which, though given before, had exerted little or no effect upon the bowels. The tannalbin was given in 15-grn. doses every three hours or longer as required. (Death resulted three months later from rupture of the sac.)

Case II.—Mr. S. consulted me for symptoms of *acute irritation of stomach and bowels*, vomiting, and diarrhea, with considerable griping, evidently an attack precipitated from acute indigestion. I gave bismuth subnitrate for the vomiting, and tannalbin in 15-grn. doses, repeated every three hours for three doses, with directions to repeat after each defecation thereafter until well. Reported that three doses of each did the work and he had no further trouble. In this case the bowels were well cleansed before treatment began.

Case III was of bilious origin. Such cases are not usually of long duration, but this case was complicated with malarial infection. Three 10-grn. doses of tannalbin checked the bowel trouble, and a few doses of quinine sufficed for the malarial symptoms.

Dr. J. Verclytte,<sup>10</sup> of Lille, France, says:

Tannalbin exerts the action of tannin, but only in the intestine, whence its advantages over the other forms of tannin. *Every form of diarrhea* was found amenable to it, except sometimes those of the last stages of phthisis and some cases of obscure origin which, for lack of precise etiology, we classified as nervous. Its prolonged use has never caused untoward effects, nor disinclination.

Dr. C. Stein,<sup>11</sup> of the Medical Clinic of Prof. Nothnagel, at the University of Vienna, in reporting his experience with tannalbin, says:

Perfect results within at most four days, even in the acute cases non-amenable to dietetic measures and where opium had merely palliated the

<sup>8</sup> *The Post Graduate*, Nov., 1897.

<sup>9</sup> *Merck's Archives*, II, p. 50.

<sup>10</sup> *Recherches sur la Valeur clinique de la Tannalbine*, Lille, 1877.

<sup>11</sup> *Wiener med. Presse*, 1897, No. 22.

pain. Stools normal within a week. In *subacute* and *chronic catarrhs* of small and of large intestine, the results were throughout excellent. Even in cases resisting all other medication for months, a week's continuation of tannalbin, after normal defecation had been once reached, sufficed to establish permanent cures.

Dr. L. Roemheld,<sup>12</sup> of the Children's Clinic of Prof. Vierordt, at the University of Heidelberg, speaks highly of tannalbin. He says:

Tannalbin, according to the consensus of all observers, affords most excellent service in the various forms of *enteritis* in children as well as in adults, and hence deserves to be ranked at the head of the entire class of astringent constipants.

Dr. Treumann,<sup>13</sup> of Nuremberg, reports as follows:

No disagreeable by-effects were ever noted, not even with the use of as much as 2½ drams (10 Gm.) per day. Whenever an astringent was indicated, tannalbin gave exact results, with greater promptitude and certainty than I have witnessed from any other remedy, including the various forms of bismuth—as dermatol, etc.

Dr. von Engel,<sup>14</sup> chief physician to the Moravian Provincial Hospital, in Brünn, Austria, is of the opinion that:

Tannalbin is a reliable remedy, of very certain action, in *acute diarrheas*, and most particularly in uncomplicated *chronic enteric catarrhs*. Highly favorable results were obtained in the entire group of chronic affections in which astriction is indicated. Injurious effects or aversion were never caused.

Dr. J. Golinier,<sup>15</sup> of Erfurt:

Tannalbin is indicated wherever *catarrhal affections* of the intestines exist, and exerts its antiseptic and astringent properties even to the lowest portions of the large intestine.

Prof. O. Vierordt,<sup>16</sup> of the Medical Polyclinic of the University of Heidelberg, reports thus:

Exclusively such cases were selected for the tannalbin experiment as had proved refractory to the usual modes of treatment. In all these *various diarrheal cases*, surprisingly prompt and thorough action was had from this drug. The energetic astringent action of tannalbin always sufficed, even in many instances where no dietetic

regulation could be had, to procure a perfect return to normal functions.

Dr. K. Holzapfel,<sup>17</sup> of the Medical Polyclinic of the University of Strassburg, referring to severe cases in which tannalbin was used, says:

These *severe diarrheas* were all brought to an entire stop. Wherever it seemed necessary, the doses were increased in quantity and frequency, without the slightest disagreeable effect ever supervening. This new drug thus deserves preference over all others heretofore employed in these affections.

Prof. G. Scognamiglio,<sup>18</sup> of Naples, Italy, says:

Tannalbin, beyond all doubt, merits first place among all the intestinal astringents. Its insipidity and innocuousness, the absence of all untoward effects, the uniformity of its action, and its indubitable influence on the large intestine, are its distinctive virtues.

A recent paper<sup>19</sup> contains the following statements:

Tannalbin has been used in *acute follicular enteritis*, by Dr. Cozzolini,<sup>20</sup> who speaks highly of this remedy in irrigation of the bowel, using it in the proportions of 1 to 10 per cent. in starch-water. When tenesmus is marked, two or three drops of laudanum are added. The treatment is begun by the administration of small doses of castor-oil or calomel. The enema of tannalbin should be immediately preceded by a large enema of salt solution of sterile water, for the purpose of cleansing the intestine and bringing the drug into more direct contact with the affected mucosa. The doctor considers his results much better and more rapid than those obtained by the use of the usual astringents—such as tannin, zinc sulphate, silver nitrate, alum, or lead acetate.

Dr. Virginius W. Gale,<sup>21</sup> professor of materia medica and therapeutics at the University Medical College, Kansas City, Mo., in a paper entitled, "Some Thoughts on Gastro-Intestinal Therapy," refers to tannalbin in the following strain:

Tannalbin is giving great satisfaction now in the treatment of the various diarrheas with which we have to deal, not only in summer complaints of children, but in *chronic diarrheas*, and in the diarrhea so frequently seen in the late stages of pulmonary tuberculosis. The remedy is innocuous, easily taken, tasteless, and is reliable. In

<sup>12</sup>Münch. med. Wochenschr., 1897, No. 36.

<sup>13</sup>Münch. med. Wochenschr., 1897, No. 18.

<sup>14</sup>Deut. med. Wochenschr., 1896, No. 11.

<sup>15</sup>Kinderarzt, 1896, No. 11.

<sup>16</sup>Deut. med. Wochenschr., 1896, No. 25.

<sup>17</sup>Deut. med. Wochenschr., 1896, No. 50.

<sup>18</sup>Wiener med. Blätter, 1897, No. 2.

<sup>19</sup>Merck's Archives, 1, p. 438.

<sup>20</sup>Amer. Jour. Med. Sciences, CXVIII, p. 355.

<sup>21</sup>Merck's Archives, 1, p. 425.



catarrhal conditions of the stomach, with abundant secretion of mucus, tannalbin is efficacious; it is said to prevent putrefactive fermentation, and the tendency to hyperacidity. Dietetics must be looked after, as they constitute an important part of the treatment of these cases. In many cases where there is cardiac inhibition from some cause, resulting in a lessened blood-supply to the gastric mucosa, causing thereby a disturbance of the digestive functions, with varied and multiform symptoms, digitalis and strophanthus will be of decided advantage. They are also beneficial in some cases of hemorrhage resulting from gastric ulcer.

Prof. J. T. Moore,<sup>22</sup> of Hamline University, Minneapolis, Minn., treated two cases of chronic muco-colitis. Both were marked by the passage of considerable masses of mucus, together with long strings and flakes of the same material, resembling casts from the mucous lining of the bowels. The cases are described as follows:

Case I.—Patient brought bottle containing mucus and casts for inspection. I placed him on 15-grn. (1 Gm.) doses of tannalbin three times per day, and for the first two weeks of treatment ordered also an enema, once a day, of 1 dr. of powdered alum in 1 quart of warm water, to be retained a few minutes; the patient being in a recumbent posture, hips elevated. After two weeks this was stopped and tannalbin alone continued for four weeks longer. It is now some months since treatment was abandoned, and patient remains perfectly well. I occasionally ordered a laxative to overcome tendency to constipation produced by use of the tannalbin.

Case II.—History similar to preceding case: mucus and flakes in considerable masses had been passed the previous evening, there being but little fecal matter. There was also some constipation. In all probability the condition was produced by the retention of fecal masses in the colon. I placed patient first upon cascarn compound tablets until the constipation was overcome, then gave tannalbin for the catarrhal condition causing mucous discharges. No other treatment was used. After four weeks all symptoms had disappeared and an unpleasant bloating was also completely relieved.

#### TANNALBIN IN INFANTS' AND CHILDREN'S DIARRHEAS

Prof. William Henry Porter,<sup>23</sup> of the New York Post-Graduate Medical School and Hospital, says:

In the *acute diarrheal affections of children*, and particularly in those cases in which there is

a large outpouring of mucus, tannalbin has been found very efficient by those who have used it extensively.

Dr. T. V. Smith, of Westfield, N. J., says:

From tannalbin I got only ameliorating results in the treatment of *nephritis*; but in several cases of *enteric affections* of infants in which I tried it there was prompt and marked relief.

Dr. I. G. Rey,<sup>24</sup> of Aachen, Prussia, states that:

The astringent effect of the tannalbin was found to be absolutely certain in all our cases of *cholera infantum*. Even when, in the worst cases, the medicine was vomited for the first few times, a continuance of hourly doses soon conquered this symptom and the malady itself as well.

Dr. Golinier,<sup>25</sup> of Erfurt, in using tannalbin finds that:

Both in *acute* and in *chronic enteritis* of children the results in every case are very satisfactory, leading to cure in from three to nine days.

K. Holzapfel,<sup>26</sup> of the Medical Polyclinic of the University of Strassburg, says:

I fully indorse the favorable verdicts of von Engel and Vierordt on this new drug, after the series of ninety cases had in this clinic, sixty-five of whom were infants in their first year, the rest being older children and adults, including a few phthisical cases.

Dr. Treumann,<sup>27</sup> of Nuremberg, states that:

Exceedingly good service is rendered by tannalbin in infant practice, especially in the *catarrhal diarrheas* of nurslings. No small share of the success thus obtained is due, in first order, to the tastelessness of this remedy, which occasions neither disinclination nor anorexia, and thus permits of unhindered administration, a freedom not obtainable with the other tannates and astringent drugs.

Dr. Hans Osk. Wyss,<sup>28</sup> of the Children's Hospital, of Hottingen, Zurich, thus relates his experience with tannalbin:

*Acute enteritis* and *gastro-enteritis* of children yielded on the second day; subacute cases in several days; while grave *chronic intestinal catarrhs*, even those of tuberculous nature, gave way gradually and surely. In cases where other medication had been attempted in vain, and where even large doses of opium remained quite ineffectual,

<sup>24</sup>Deut. med. Wochenschr., 1897, No. 3.

<sup>25</sup>Kinderarztl., 1896, Heft No. 11.

<sup>26</sup>Deut. med. Wochenschr., 1896, No. 50.

<sup>27</sup>Munch. med. Wochenschr., 1897, No. 18.

<sup>28</sup>Correspond.-Blatt f. Schweizer Aerzte, 1897, No. 15.

<sup>22</sup>Merck's Archives, 11, p. 48.

<sup>23</sup>The Post-Graduate, Nov., 1897.

the effects of tannalbin were surprising. Even rectal catarrhs were promptly cured with tannalbin. Vomiting that existed as a factor in a number of cases was speedily abolished. The appetite was promptly restored and the tolerance for normal food re-established.

Dr. J. Czernetschka,<sup>29</sup> of the Medical Clinic of Prof. Ganghofner, at the University of Prague, says that:

Barring a few complicated rachitic cases, the exact nature of which is still obscure, no failure was had, and the percentages in my infant series were: cured, 72½ per cent.; improved, 27½ per cent. The remedy was readily taken, and never caused the least gastric derangement. The appetite was in no instance diminished, which is of high importance in nursing children, where so frequently dyspeptic troubles are to be combated along with the enteric disturbance.

Dr. N. P. Gundobin,<sup>30</sup> Privat-Dozent at the Imperial Russian Military Academy in St. Petersburg, endorses the reports of the efficiency of this agent. He says:

Twenty children, from 1 month to 10 years, were treated with tannalbin. There were twelve cases of *chronic enterocolitis*, four of *acute enteritis*, 2 of nursing's *dyspepsia*, and four of *subacute colitis*. In some, the entire list of older remedies (such as bismuth, opiates, silver, and tannates) had been exhausted in vain. The tannalbin action proved highly satisfactory in all cases, especially so in the chronic forms. The single dosage was 1½ grn. (0.1 Gm.) for each year of age, given two to four times per day. The remedy was readily taken, and its prolonged administration caused no inconvenience whatever.

Dr. Josef Friedjung,<sup>31</sup> of the Children's Clinic of the University of Berlin, says:

My conclusions from observations on infants mostly under one year of age (in forty-five cases of very different natures and with correspondingly different results) are, that tannalbin is wholly innocuous, and that it never causes the least interference with alimentation. Thus, although not a specific it may be fearlessly given. According to my experience, although the drug had no effect in acute and chronic dyspepsia, nor in true chronic enteritis, it may confidently be tried in every case of *intestinal catarrh*. Likewise in *follicular enteritis* favorable results may be expected, especially when used in conjunction with the usual castor-oil treatment. The troublesome diarrhea of *enteric tuberculosis* may also be combated with tannalbin. The dosage ought to be a bold one. Even in the youngest infants I did not

begin with less than 4 grn. (0.25 Gm.) per single dose, given three times daily.

The following clinical report is taken from Merck's Archives.<sup>32</sup>

Waedemon<sup>33</sup> has used tannalbin in 200 cases of diarrhea with excellent results. In nurslings particularly, and in very young children, tannalbin was found to be especially useful, being successful in cases where other remedies had failed. Among the 200 cases were 171 children, of whom only two died, having come under treatment too late. Among the adults equally good results were secured, 14 out of 15 cases of dysentery being cured. Excessively frequent and bloody stools in a case of typhoid were immediately checked by the tannalbin. The best results were obtained by recurrence to large doses. To nurslings, 3 Gm. (45 grn.) were given daily, administered in a mucilaginous vehicle; adults received up to 10 Gm. (2½ dr.) even, daily, without the slightest inconvenience.

The author recommends tannalbin in all cases of infantile diarrheas, and believes it to be a veritable specific, and much superior to the remedies ordinarily employed in this class of affections.

The Aertzlicher Central-Anzeiger<sup>34</sup> reports thus:

Tannalbin is characterized by J. Rosenfeld, of Steinitz, as a superior antidiarrheal. It yields excellent results in the various forms of *subacute* and *chronic enteritis* occurring in children. Unlike some of its congeners, tannalbin is invariably well borne, never provokes vomiting nor disturbs the appetite, and regularly arrests the diarrhea, without tending to produce constipation as an after-effect.

Dr. Moncorvo,<sup>35</sup> of Rio Janeiro, writes as follows:

I have studied the action of tannalbin in 200 cases of *infantile diarrheas* and dysenteries, some of which were very grave and of long standing, in spite of the remedies that had been previously applied. The remedy was also tried in the treatment of *nephritis*, both subacute and chronic, in children, instead of tannin. In all the cases in which it was tried, tannalbin gave very satisfactory results. \* \* In cases of *follicular enteritis* and *serous colitis* with rectal prolapses, the results proved that the tannalbin reached the inferior extremity of the intestinal canal; thus rendering the medicament of remarkable utility in the treatment of the affections so generally resistant in young subjects. In most cases, the remedy was given suspended in a julep, which was well tolerated by the young invalids. For the older chil-

<sup>29</sup>Prager med. Wochenschr., XXII, 1897, No. 24-27.

<sup>30</sup>Djetskaja Medicina, 1897, No. 1.

<sup>31</sup>Jahrbuch für Kinderheilkunde, XLV, No. 1.

<sup>32</sup>Merck's Archives, I, p. 111.

<sup>33</sup>Annal de la Soc. de Méd. de Gand, LXXVII, p. 277.

<sup>34</sup>Aertzl. Central-Anzeiger, 1899, No. 14.

<sup>35</sup>Merck's Archives, I, p. 74.

dren, the tannalbin was inclosed in cachets. The doses ranged from 8 to 75 grn. (0.5 to 5 Gm.) per day. In many cases they may be repeated for long periods without the slightest inconvenience. Tannalbin is without question an excellent acquisition for the treatment of infantile complaints. The same judgment may also be passed upon its use among adults.

Dr. Robert C. Kenner,<sup>36</sup> of Louisville, Ky., in a recent paper on the treatment of acute entero-colitis in children, says:

Lately I have come to employ another remedy which has brought me better results than other drugs which I have used before. This agent is tannalbin. It produces no gastric trouble and it is prompt in its results. It acts on the entire intestinal mucosa, and produces none of the disagreeable after-effects common to drugs of this character. These are among the reasons why I value it so highly. I give this agent in 5-grn. (0.3 Gm.) doses to infants, and to children from two to five years of age, I administer it in 8-grn. (0.5 Gm.) doses, generally once every three hours. In some cases when the diarrhea was violent it was given oftener, and conversely not so frequently when the exigency of the case did not demand it. I give a few clinical histories which seem to prove the value of the treatment.

Case I.—A. L. G., aged 3, had been a sufferer from enterocolitis for two months, she was greatly emaciated and her feet were puffy. She had from ten to fifteen actions daily. She was at once put on tannalbin in 7-grn. (0.45 Gm.) doses every four hours. Peptonized milk was given, and the hygienic surroundings were brought to the highest point attainable. On this treatment the patient began at once to improve, and I was able to discharge her in ten days from the time I was first called.

Case II.—U. C., aged two and a half years. This child had a profuse diarrhea for three weeks and was then greatly emaciated. Properly arranged dietary and 7-grn. doses of tannalbin every four hours brought about prompt relief.

Case III.—I. M. Y., aged three years, was greatly emaciated and had a diarrhea for the past four weeks. On the same treatment as in the above case, this child rapidly regained its strength.

I have thus treated fifty cases, with 95 per cent. of recoveries.

Dr. Olimipo Cozzolini<sup>37</sup> reports as follows:

Found tannalbin an excellent remedy, especially in the *diarrhea of infants*. For children in the early months of life I know of nothing better. In some forty cases two only resisted its action. One was an advanced case of tubercular trouble with

persistent diarrhea, the other an equally severe case of atrophy, both in children under two years of age.

Dr. I. G. Rey,<sup>38</sup> of Aachen, Prussia, says:

In my opinion, in the *acute gastro-enteritis* of children, and especially in *cholera infantum*, the alternative administration of tannalbin and of extremely minute doses of calomel will succeed, even where strict attention to diet cannot be secured, in conquering every case, except, possibly, some of the fulgurant variety of acute cases, and some very far gone chronic ones of tuberculous origin.

Prof. J. T. Moore, whose paper on the treatment of diarrhea, published in *Merck's Archives*, was referred to above, also reports excellent results from tannalbin in infantile diarrhea. The following case he considers instructive:

Infant of four months; history of diarrhea for two days, when vomiting began suddenly, with watery discharges from bowels every half hour; child pale and listless, eyes somewhat sunken. The diarrhea of two days was probably due to direct irritation from undigested substances passing through the intestines; the change in symptoms marked the time when bactericidal action began and seemed verging upon inflammatory action. Here was a case where all authorities deprecate the use of astringents, particularly those of vegetable origin. I believed the condition of fermentation had largely to do with the symptoms. My past experience with tannalbin, both as astringent and antiseptic, decided my course in this case. I prescribed 5-grn. doses every three hours for three doses, alternated with 5 grn. of bismuth subnitrate and  $\frac{1}{2}$  grn. of salol. The time between doses was extended to four, five, and six hours, as the symptoms improved. The next day the infant was very much improved, and the succeeding day treatment was discontinued. There was no vomiting and the discharges were practically normal.

#### TANNALBIN IN PHTHISICAL DIARRHEA

Dr. von Engel,<sup>39</sup> chief physician to the Moravian Provincial Hospital, in Brünn, Austria, found tannalbin of virtue in the wards of that institution. He says:

In our phthical cases tannalbin did most excellent service. Of 12 cases, most of which were pretty far gone, 11 were cured of the diarrheal complication.

Dr. C. Stein,<sup>40</sup> of the Medical Clinic of Prof. Nothnagel, at the University of

<sup>36</sup>*Merck's Archives*, 1, p. 256.

<sup>37</sup>*Merck's Archives*, 1, p. 79.

<sup>38</sup>*Deut. med. Wochenschr.*, 1897, No. 3.

<sup>39</sup>*Deut. med. Wochenschr.*, 1896, No. 11.

<sup>40</sup>*Wien. med. Presse*, 1897, No. 22.



Vienna, reports equally valuable results. He reports thus:

The tannalbin medication entirely obviates the *digestive disturbances* which are so much to be deprecated in *phthisical* cases (and which were a continual obstacle to our giving tannin in other forms for any length of time). In all these cases we secured the desired action from tannalbin in a few days without the least drawback.

Prof. O. Vierordt,<sup>41</sup> of the Medical Polyclinic of the University of Heidelberg, says:

The same energetic action as was demonstrated by tannalbin in *simple enteritis*, was had also in the cases diagnosed as *enteric tuberculosis*.

Prof. G. Scognamiglio,<sup>42</sup> of Naples, Italy, reports thus:

Also in our *tuberculosis* cases prompt action was secured. Ten to fifteen days' tannalbin medication sufficed for the abiding extinction of the troublesome diarrhea. In all these cases bismuth, opiates, lead salts, etc., had entirely failed.

Dr. Treumann,<sup>43</sup> of Nuremberg, states that:

The benefit from tannalbin was still more remarkable in the *chronic* forms of *intestinal catarrh*, including those of *phthisical* cases.

Prof. J. T. Moore,<sup>44</sup> of Hamline University, Minneapolis, Minn., referring to *phthisical* diarrhea, says:

In the diarrhea of *phthisis* I have had but two opportunities to use tannalbin; in both cases the result was all that could be hoped for from any medication. The dose was 15 grn. (1 Gm.) every three hours, or from two to three times a day, as indicated.

The following cases were reported to me by my confrère, Dr. F. A. Knights:

Case I.—J. H., carpenter, aged about forty; history of chronic diarrhea for five years, during most of which time he was under some treatment. The discharges began every day about 4 or 5 P. M., following each other in rapid succession until three or more had passed. Tannalbin, 5 grn. every four hours, was prescribed; in three days stools were less fluid and more controllable. Treatment continued for a week, when patient reported bowels normal.

Case II.—Miss H., last stage of *phthisis*; profuse diarrhea; opium in  $\frac{1}{4}$ -grn. doses was used, but the constitutional effect upon the already weakened patient was not good. Tannalbin in 5- to 10-grn. doses three times a day controlled bowels perfectly, without any systemic effect. I finally gave her the drug in bulk, which she took

in 5- to 10-grn. doses, measured on point of knife as required. Bowels were thus controlled up to the time of death.

Case III.—*Phthisical* diarrhea, similar to above. Received 5 grn. of tannalbin every four hours, as needed. Result excellent.

Case IV.—Profuse, protracted diarrhea, following a relieved fecal impaction. Bowels were controlled as desired by increasing or decreasing dose of tannalbin. Dose 3 to 10 grn. two to four times a day, as indicated.

#### TANNALBIN IN GASTRIC AFFECTIONS

Prof. William Henry Porter,<sup>45</sup> of the New York Post-Graduate Medical School and Hospital, reports as follows:

Tannalbin is of considerable value in the treatment of gastric affections. In the *acute* and *chronic catarrhal conditions of the stomach*, its free administration will often arrest the excessive secretion of mucus, and precipitate the mucus secreted; thus destroying the support given by this mucus to the various micro-organisms infesting the tract. Thus tannalbin acts, when occasion offers, indirectly as a gastric disinfectant, overcoming the possibility of putrefactive fermentation and therewith the tendency to superacidity. Withal, it never causes any gastric irritation. It usually augments the powers of digestion, by removing some of the causes of indigestion. In all forms of *chronic indigestion*, either gastric or intestinal, in which there was this *hypersecretion of mucus* with its constant fermentation, tannalbin has almost invariably given speedy relief, and in a majority of cases to a more marked degree than any other remedy.

#### TANNALBIN IN TYPHOID FEVER

Prof. J. T. Moore,<sup>46</sup> of Hamline University, Minneapolis, Minn., referring to the use of tannalbin in typhoid fever, says:

In several cases of typhoid fever, characterized by excessive discharges, tannalbin in every case controlled action of the bowels without producing any evidence of the irritation so frequently attending the administration of vegetable astringents; the attending tympanitis was at the same time favorably modified.

#### Formulas for the Use of Tannalbin

Tannalbin ..... 1 dr.  
Spirit Cinnamon ..... 2 min.  
Aromatic Powder ..... 10 grn.  
Sugar ..... 10 grn.  
Make 10 powders. One every 2 or 3 hours.  
(In summer diarrhea of children.)

<sup>41</sup>Deut. med. Wochenschr., 1896, No. 25.

<sup>42</sup>Wien. med. Blätter, 1897, No. 2.

<sup>43</sup>Münch. med. Wochenschr., 1897, No. 18.

<sup>44</sup>Merck's Archives, Feb. 1900, p. 50.

<sup>45</sup>Post-Graduate, Nov., 1897.

<sup>46</sup>Merck's Archives, II, p. 49.

Tannalbin ..... 2 dr.  
 Brandy ..... 2 fl. dr.  
 Syrup ..... 4 fl. dr.  
 Distilled Water ..... to make 2 fl. oz.

Teaspoonful 4 to 6 times daily.

(In *summer diarrhea* of nurslings.)

Tannalbin ..... 1 dr.  
 Dover's Powder ..... 8 grn.  
 Aromatic Powder ..... 10 grn.  
 Sugar ..... 6 grn.

Divide into 12 powders. One every 2 hours for 2 or 3 doses, then every 4 to 6 hours for child about 1 year; double this dose for 2-year-old children.

(In *summer complaint*.)

Tannalbin ..... 3 dr.  
 Morphine Sulphate ..... 1½ grn.  
 Salol ..... 1 dr.  
 Camphor ..... 12 grn.  
 Ichthalbin ..... 2 dr

Divide into 12 powders. One every 1 or 2 hours.

(In *Asiatic cholera*.)

Tannalbin ..... 4 dr.  
 Oil Cassia ..... 2 drops  
 Morphine Sulphate ..... 2 grn.  
 Sugar ..... 15 grn.

Dispense in 12 powders. One every 4 hours.

(In *cholera morbus* of adults.)

Tannalbin ..... 1 oz.  
 Ichthalbin ..... 1 oz.  
 Peppermint Oil Sugar ..... 20 grn.

Divide into 15 powders. One 3 times daily before meals.

(In *chronic dysentery* of adults.)

Tannalbin ..... 2 dr.  
 Resorcin Resublimed ..... 15 grn.  
 Glycerin ..... 1 fl. oz.  
 Cinnamon Water ..... to make 4 fl. oz.

Dessertspoonful every 3 to 4 hours for child 2 to 3 years of age. Shake well.

(In *acute enteritis* in children.)

Tannalbin ..... 3 dr.  
 Ichthalbin ..... 1½ dr.  
 Powd. Opium ..... 10 grn.  
 Oil Cassia ..... 2 drops

Divide into 24 powders. Two every 4 hours.

(In *phthisical diarrhea* of adults.)

Tannalbin ..... 4 dr.  
 Ichthalbin ..... 2 dr.  
 Resorcin Resublimed ..... 40 grn..

Dispense as 16 powders. One 3 times daily.

(In *tuberculous diarrhea* of adults.)

Tannalbin ..... 6 dr.  
 Bismuth Subgallate ..... 2 dr.  
 Salol ..... 2 dr.

Dispense as 48 powders. Two or three thrice daily.

(In *phthisical diarrhea* of adults.)

Tannalbin ..... 3 dr.  
 Ichthalbin ..... 1½ dr.  
 Cinnamon Oil Sugar ..... 20 grn.  
 Salol ..... 1 dr.

Make 12 powders. One every 3 or 4 hours.

(In *later stages* of *tuberculous diarrhea* in adults.)

Tannalbin ..... 2 dr.  
 Syr. Wild Cherry ..... 12 fl. dr.  
 Wintergreen Water ..... 4 fl. dr.

Dispense in 3-oz. bottle. Teaspoonful for *child*, and dessertspoonful for *adult*, every 1 to 4 hours, according to severity of case. Shake well before using.

(In *summer diarrhea* where tannalbin powder cannot be taken dry.)

Tannalbin ..... 2 dr.  
 Ichthalbin ..... 1 dr.  
 Oil Cinnamon ..... 1 drop  
 Syr. Acacia ..... 2 fl. oz.  
 Peppermint Water ..... 4 fl. dr.

Two teaspoonfuls for *adults*, one-half to one teaspoonful for *children* according to age, every 1 to 4 hours, according to severity of case. Shake well before using.

(In *severe cases* of *chronic diarrhea*.)

Tannalbin ..... 3 dr.  
 Bismuth Subnitrate ..... 2 dr.  
 Dionin ..... 3 grn.

Dispense as 12 powders. One every 3 hours.

(In *typhoid diarrhea* of adults.)

Tannalbin ..... 2 dr.  
 Salol ..... 12 grn.  
 Peppermint Oil Sugar ..... 12 grn.

Dispense as 12 powders in parchment papers. For child 1 year, one powder at first every 2 hours, then once in 4 to 6 hours; for 2-year-old children, 2 powders constitute the dose.

(In *summer complaint*.)

Tannalbin ..... 2 dr.  
 Camphor ..... 10 grn.  
 Aromatic Powder ..... 20 grn.  
 Sugar ..... 20 grn.

Divide into 24 equal parts, and dispense in parchment papers. One every 2 to 4 hours for child of 1 year, 2 powders per dose in children 2 to 3 years old.

(In *cholera infantum*.)

Tannalbin ..... 1½ grn.  
 Calomel ..... 1 grn.  
 Dover's Powder ..... 15 grn.

Dispense as 20 powders. One every 2 hours for first three doses, then every 4 to 6 hours for child of 1 year; 2 powders per dose in children 3 years old.

(In *acute infectious diarrhea*, with pain.)

# Euquinine

[Quinine Carbonic Ether, Zimmer]

## PERFECTED QUININE—TASTELESS

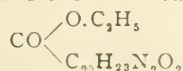
Tasteless, light, fleecy conglomerations of white needles.—**SOLUBLE** in alcohol, ether, chloroform; slightly soluble in water.—**Succedaneum** for other quinine salts, internally. Reported not to derange the stomach or intestines; to cause no bitter eructations, nausea, or vomiting; to produce cinchonism more infrequently and less intensely than quinine sulphate.—**DOSE**: Same as of quinine sulphate, in powder or tablet, or with soup, milk, or cacao.

### Introductory

MANY a time has the desire been expressed that something could be found that would prove a therapeutic equivalent of quinine and yet be devoid of its defects. All efforts hitherto made to disguise the taste of quinine and to overcome its deleterious effects have proven fruitless. Not until the synthetic chemist took up the problem was any substantial gain made. Now he seems to have solved it by using a  $\text{CO}_2$  group to link an ethyl-group with a quinine molecule in which a single hydrogen atom has been displaced. This new body, Euquinine (Quinine Carbonic Ether, Zimmer), is reported by medical authorities to possess precisely the same therapeutic properties as quinine, while being free from its drawbacks. Thus, it is said to be free from the tendency to produce nausea, loss of appetite, ringing in the ears, and the other unpleasant effects of quinine. People having an idiosyncrasy for quinine are reported to have taken euquinine with impunity and have derived from its use the same beneficial results as from quinine. Euquinine has been administered to children in coffee, milk, soups, and cocoa; and they have taken it willingly.

### General Properties of Euquinine

Euquinine has the chemical formula:



It occurs in light, fleecy conglomerations of delicate white needles, which melt at  $95^\circ \text{C}$ ., are sparingly soluble in water, but dissolve readily in alcohol, ether, or chloroform. When placed on the tongue it is at first perfectly tasteless; after some time a faint bitter taste becomes noticeable, reminding one of a very weak quinine solution. With sugar or syrup, only the sweet taste can be detected; and if the syrup is flavored to taste with oil of lemon, oil of cloves, oil of wintergreen, oil of cinnamon, or balsam of tolu, it is as pleasant as a confection.

### Laboratory Experiments

Prof. Angelo Celli,<sup>1</sup> director of the Hy-

gienic Institute of the University of Rome, has published a very interesting monograph on malarial infection, in which it is stated that quinine cannot be considered as a means of insuring immunization, because it is inactive in small doses, while it may not be given in large doses for any length of time, as it too greatly affects the stomach and nervous system.\* Of the other remedies experimented with as to their immunizing powers, almost all were found to be inactive. Only methylene blue and euquinine gave positive results. "Euquinine, which, like quinine, possesses antimalarial powers, without at the same time causing disturbances like the latter, and which is devoid of the repugnant taste, appears to possess prophylactic value; and it would be advisable to conduct an extended series of tests as to its value as an immunizer in malarial infection."

In a second report the author again calls attention to the fact that "euquinine has given very good results as a prophylactic for quartan, as well as mild and severe tertian fevers." For this purpose doses of 15 grn. (1 Gm.) were given several days before, and 15 to 20 days after, the experimental injection of malarial blood.

Dr. Oscar Marchetti has carried out a series of comparative pharmacological tests with euquinine and quinine at the laboratory of materia medica of Prof. G. Bufalini,<sup>2</sup> in Florence, and has found that the action of euquinine is almost identical with that of quinine, but that the former "exerts a less depressing action on the cardiac and vascular systems, both as regards intensity and duration, and that a more rapid return to a normal condition occurs, due undoubtedly to the more satisfactory action of euquinine."

### Clinical Reports on Euquinine

The first well-known person to put euquinine to a crucial test was Prof. C. von Noorden,<sup>3</sup> physician-in-chief to the Clinic

<sup>1</sup>*Centralbl. für Bakter., Parasitenk. u. Infektionskr.*, 1900,

<sup>2</sup>*Settimana medica dello Sperimentale*, 1893, No. 40.

<sup>3</sup>*Centralbl. für innere Med.*, 1906, No. 43.



for Internal Diseases, City Hospital, Frankfurt-on-Main. He tried it in fifteen cases of whooping-cough, fourteen of hectic fever, and six of septic fever; in a number of cases of protracted pneumonia, typhoid at the stage of greatest fluctuation in temperature, and in a few cases of neuralgia. In twelve of the whooping-cough cases excellent and rapid results were obtained, while in three it acted less satisfactorily. In these latter cases quinine also proved inefficient. In the fever cases 15 grn. (1 Gm.) doses gave excellent results, and the neuralgias were promptly relieved by the same doses, though all the usual nervines or antineuralgics had proved ineffectual. The professor says that during all the time his patients were under observation "there was not a single instance of untoward by-effect from the euquinine—not even after daily doses of 1 to 2 Gm. (15 to 30 grn.), taken for a considerable time." He assures us that he found that euquinine "possesses all the characteristic qualities of quinine."

Dr. M. Overlach,<sup>4</sup> of Greiz, reports having used euquinine as an antipyretic in pneumonia, pleurisy, influenza, typhoid fever, and erysipelas. He had it under observation for a year and declared that his results had agreed substantially with those reported by Prof. von Noorden. He tells us that "euquinine can be administered in cases where the patients cannot retain quinine," and that as a febrifuge he is "of the opinion that its action is exactly similar to that of quinine, both in intensity and in its lasting effects." He places among the important merits of euquinine the fact "that it greatly reduces the cerebral symptoms that cause the so-called 'quinine intoxication,'" and deduces from the fact that with the use of quinine ringing in the ears increases with every large dose successively administered, while no such cumulative effect occurs with euquinine, that "euquinine has no cumulative effect on the brain; which is of considerable importance, especially in cases where large, frequent doses are needed, as in malaria." In a case of unilateral cervico-occipital neuralgia, where the pain was of such intensity as to cause convulsions, Dr. O. gave 15 grn. (1 Gm.) of euquinine; this proving insufficient, he repeated the dose a

few hours later, and then put the patient on  $1\frac{1}{2}$  grn. morning and evening regularly. The 15 grn. extra doses were given on three different days, after which the  $1\frac{1}{2}$  grn. doses twice a day were sufficient to control the pain. After three weeks' treatment the neuralgia and the excessive anemia that characterized the case had been cured and the proportion of white to red blood corpuscles raised from 1:194 to 1:446.

Dr. J. Gölner,<sup>5</sup> of Erfurt, having abandoned sulphate of quinine in grip cases because of its ill effects upon his patients, tried euquinine and reports that "the results proved satisfactory without exception, the rheumatic and neuralgic pains being almost immediately lessened." His final verdict in regard to its use in such cases is that "there is no medicament to equal euquinine in the case of influenza with nervous symptoms, euquinine causing no troublesome secondary effects as do phenacetin, antipyrine, acetanilid, etc." In a case of phthisis, in which he used euquinine to control the fever, he gave daily doses of 30 grn., and he asserts that "invariably about an hour after administration" the patient "stated that he felt greatly relieved;" the effect lasted from 10 to 12 hours and the antipyretic action "manifested itself to perfection," the temperature within two or three hours declining from  $39^{\circ}$  C. ( $102.2^{\circ}$  F.) to  $37.5^{\circ}$  C. ( $99.5^{\circ}$  F.). The author speaks highly of its results in pneumonia, and says that "euquinine has, moreover, proved highly beneficial in cases of acute rheumatic fever and heart disease."

Dr. G. Panegrossi,<sup>6</sup> of the San Spirito Hospital, in Sassia, Rome, has studied the action of euquinine in malarial fever. No more typical cases occur anywhere in the world than are found among those exposed to the swamp emanations of the "Eternal City." After an extensive trial, he asserts that "euquinine shows the characteristic action of quinine in malaria. In light as well as in more serious cases it at once arrests the febrile attacks, and the apyrexia continues even after the discontinuance of the remedy." He pronounces euquinine perfectly innocuous in such doses as are ever likely to be administered to patients, and says that "neither with adults nor with

<sup>4</sup>*Deut. med. Ztg.*, 1897, No. 15.

<sup>5</sup>*Allg. medicin. Cent.-Zeit.*, 1897, No. 19.

<sup>6</sup>*Gaz. degli Ospedali e delle Cliniche*, 1897, No. 118.

children have any disturbances of circulation or of respiration ever been observed."

Dr. N. N. Alexeeff,<sup>7</sup> senior physician to the Heiligen Wladimir Hospital, of Moscow, in a comprehensive publication regarding the use of euquinine in malarial fevers in children, reports having given the remedy in doses of 3 grn. (0.2 Gm.) twice daily to young children, and 8 grn. (0.5 Gm.) twice, sometimes thrice, daily to children of ten or twelve years of age. The first dose was always given five hours, the second two or three hours, before the expected attack. The remedy was well borne by all the patients, no disagreeable intestinal disturbances being noted, and excepting very rarely, no disturbances of hearing or of the nervous system, or changes in appearance. "The satisfactory results obtained in the treatment of malarial fever, the absence of all bitter taste, and ease with which it is borne, invite the manifold and extensive employment of this remedy."

Dr. N. E. Saltas<sup>8</sup> has given euquinine in intermittent fever with results exactly similar to those afforded by quinine, but without the by-effects usually caused by the latter. The author also cites a number of cases of malarial complications in which quinine always caused pains in the kidneys and bloody urine, effects which could not be prevented by the addition of other remedies, such as ergotin, tannates, etc., to the quinine. On the administration of euquinine, however, "the febrile attacks rapidly subsided after the exhibition of doses of 1 to 1.5 Gm. (15 to 23 grn.), without any hematuria being caused, even though euquinine was given for four or five days consecutively." Also in a case of malaria complicated with quinine-eczema, euquinine effected a cure with the simultaneous relief of the eczema. The author also observed good results in cases of broncho-pneumonia in children. He comes, therefore, to the conclusion that "euquinine acts just like quinine," but that "it deserves preference because it is tasteless, irritates the nerves less, and causes no eczema or bloody urine."

Dr. Ettore Levi,<sup>9</sup> of Morimondo, has studied the action of euquinine, particular-

ly in such cases of malaria in adults and children as had proved resistant to the usual quinine salts. From his investigations the author comes to the conclusion that euquinine only very exceptionally causes by-effects of any kind, but that "it exerts a remarkably good action in malaria, even in very obstinate cases," and that it has shown itself to be an "efficient, perfectly harmless, and easily administered remedy for children." The interesting observation was also made in a case of malaria in which the patient, a pregnant woman, had previously been twice treated with quinine under similar circumstances, with the result that once abortion was actually caused, and the other time threatening symptoms ensued on the exhibition of quinine. When euquinine was given, however, the febrile symptoms were relieved without the slightest symptoms of threatening abortion.

Dr. F. Suchomlin,<sup>10</sup> Provincial Physician, of Konotop, states that he has administered euquinine in twenty cases of malaria in children from one to twelve years of age, and always with success. Most of the cases were of the quotidian type. The remedy was administered in doses of as many grains as the patient was years old, the first dose being given six to eight, the second one to two hours before the attack. Many children took the euquinine with the greatest willingness in milk, water, or gruel, and without suspecting it. The author states that somewhat larger doses are required than of quinine, but that in spite of this, it should be considered indispensable, because of its great advantages—"it has no disagreeable taste and causes no by-effects."

Prof. W. A. Tichomiroff,<sup>11</sup> of the Kaiser-Paul Hospital, of Moscow, has tested euquinine in the hospital and in his private practice, and particularly in erysipelas, measles, scarlet fever, and acute bronchitis. He has found that "in antipyretic power euquinine is in nowise inferior to quinine, while it is much better borne than the latter, causes far less ringing in the ears, and is, above all, free from bitterness, which is especially of the utmost value in pediatrics."

Dr. G. Rondinini,<sup>12</sup> of Cento, has employed euquinine in twelve cases of ma-

<sup>7</sup>*Djet'skaja Medizina*, 1898, No. 4.

<sup>8</sup>*Jatrike Proodos*, 1898, No. 5.

<sup>9</sup>*La Nuova Rivista clinico-terapeutica*, 1898, No. 10.

<sup>10</sup>*Eschenedelnik*, 1898, No. 16.

<sup>11</sup>*Pharmazeut*, 1898, No. 17.

<sup>12</sup>*Il Pratico*, 1898, No. 13.

laria and in febrile affections of various forms and origin, especially in bronchopneumonia, rheumatism, phthisis, puerperal fever, whooping-cough and neuralgia; and he considers the medicament as being "fully equal in effectiveness to quinine." Doses of 23 to 30 grn. (1.5 to 2 Gm.) to adults, and 3 to 4½ grn. (0.2 to 0.3 Gm) to children effected a decided and permanent reduction in temperature. Unpleasant by-effects were observed only to the slightest extent, and even these disappeared entirely on prolonged exhibition of the remedy. Euquinine also exerted a decided sedative action on the nervous system, as well as a beneficial influence on the general condition. The continued exhibition of small daily doses of 0.2 to 0.3 Gm. afforded considerable improvement in the appetite and digestion in anemia, and in gastric and intestinal disturbances. A special advantage, the author states, is the tastelessness of the preparation. Excellent results were also obtained in influenza-neuralgia, and in hemicrania due to rheumatism. In view of his experience, the author characterizes euquinine as a "valuable addition to the materia medica; a true and reliable substitute for quinine, over which it possesses the advantages as an antipyretic, antineuralgic, and antiperiodic, of causing no unpleasant secondary by-effects, and of being readily taken."

Dr. A. M. Zentner<sup>13</sup> has used euquinine in thirty-five cases of malaria, both in his hospital and private practice, and in adults and children. Thirteen of the cases were quotidian, ten tertian, three quartan, six continuous, and one was a malarial cachexia. The euquinine was exhibited suspended in milk or water. "No complaint was ever made regarding any bitterness, nor were there ever observed any symptoms of irritation of the gastro-intestinal tract, in which respect euquinine possesses a great advantage over quinine." Ringing in the ears was sometimes noted, but was of less duration than with quinine; this was also the case with the other nervous phenomena which were usually manifested on the exhibition of quinine. The doses were almost in all cases like those of quinine. For cutting short a malarial attack, a dose of 22 to 55 grn. (1.4 to 3.6

Gm.) sufficed for adults; for children 4½ to 18 grn. (0.3 to 1.2 Gm.). "In all cases the fever and pain were relieved, the splenic enlargement reduced, and the anorexia and debility lessened." Euquinine is therefore regarded as a remedy having a therapeutic action equal to that of quinine, and which is to be given in doses like those of the latter; while it is preferable to quinine because of its comparative freedom from the unpleasant by-effects of the latter.

Dr. Arpad Fauser,<sup>14</sup> chief physician at the Barmherzigen Hospital, Budapest, after trying euquinine on twelve cases of malaria of various types, in a daily dose of 20 grn., taken in two portions half an hour apart, declares that "in every case euquinine brought about complete recovery, no matter whether the malaria was of the intermittent, quotidian, tertian, or quartan type." In drawing a contrast between his experience with euquinine and quinine, he says: "Euquinine cures malaria just as certainly as quinine, all the advantages of which it possesses without, however, producing its untoward by-effects." In none of the cases he treated were there any signs of a cinchonism, and ringing in the ears was not produced.

Dr. Antonio Mori,<sup>15</sup> director of the Spedale di Campiglia Marittima, in Maremma, has tested euquinine in malarial infections particularly, and has found that in 80 per cent. of his cases the febrile attacks were cut short almost by the first dose of the remedy, while in the remaining cases the fever disappeared on the second day. The usual doses given were 15 grn. (1 Gm.), but satisfactory results were obtained even with smaller doses. The author hence deduces that "the therapeutic effect of euquinine is not less than that afforded by quinine," and to this must be added the advantage that "the by-effects following the ingestion of quinine, and designated as cinchonism, are observed in much lesser degree when euquinine is given, and disappear after the first few days' treatment, even though the doses given remain unchanged. For children euquinine is particularly valuable, and is to be preferred because of its freedom

<sup>13</sup>*Terapeutischesky Wjestnik*, 1898, No. 23.

<sup>14</sup>*Klin.-therap. Wochenschr.*, 1898, No. 26.

<sup>15</sup>*Settimana medica dello Sperimentale*, 1898, No. 26.



from taste, and because it is always very well borne in the usual doses of 0.8 Gm. (12 grn.)."

Dr. Silvio Sapigni<sup>16</sup> has given euquinine in many cases of influenza in doses of 1 Gm. (15 grn.) to adults, and 0.5 Gm. (8 grn.) to children eight to fourteen years old, and has obtained by means of it a reduction of temperature within one to three hours to a normal point, the headaches and intercostal neuralgia being relieved at the same time. A complete cure was secured by continuing the exhibition for a few days. Besides its tastelessness, the author lauds the preparation for not causing gastric disturbances, and for its much weaker effect on the head than is exerted by quinine, an action, moreover, which disappears on the continued exhibition of euquinine, whereas with quinine it does not. The author characterizes euquinine as "an ideal remedy for influenza."

Euquinine<sup>\*</sup> has been used by Dr. Xaver Lewkowicz,<sup>17</sup> of the Royal Imperial Pediatric Clinic of Prof. Jakubowski, in Cracow, in sixteen cases of malarial fever in children, and "in every case with certain and positive results." The bactericidal action of the euquinine on the malaria microbe was constantly in evidence. The remedy was administered suspended in some indifferent liquid, and only twice was ringing in the ears observed after the exhibition of very large doses. "The introduction of euquinine is to be heartily welcomed, because it constitutes a quinine without a bitter taste."

Dr. St. George Gray,<sup>18</sup> of St. Lucia, West Indies, reports having given euquinine in many cases of malaria, and that while the remedy also causes cinchonism, it is a "far more powerful antipyretic than quinine;" and that "doses of 0.6 to 1 Gm. (10 to 15 grn.) of euquinine were equally as effective as 1.2 to 2 Gm. (18 to 30 grn.) of quinine." The maximum doses of euquinine were 13 grn. (0.9 Gm.) once or twice daily, with a laxative. "One or two doses relieved the fever in all cases." The author thus concludes that "euquinine is as specifically effective in malaria as is quinine, to which it is, moreover, superior in

being tasteless and in being readily administered."

Dr. A. J. Lecatis,<sup>19</sup> of Samos, states that he has administered euquinine in cases of influenza complicated with nervous disturbances, and found it to be "superior in every case to all other antipyretics." The author has further used it in forty-one cases of malaria "with most excellent results, and without gastric disturbances being observed." Its main advantage is considered as residing in its tastelessness. The remedy was given in quantities of 15 grn. (1 Gm.) daily, divided into three doses given at hourly intervals. Children received 3 to 8 grn. (0.2 to 5 Gm.) daily, in milk or water. In pediatrics, euquinine afforded most excellent service, because "it is readily taken, and the physician may with certainty control the dose" (with quinine the bitter taste most frequently causes vomiting). In consequence of the results obtained, the author now employs euquinine exclusively in the treatment of malaria, and recommends it to his colleagues.

Prof. R. Kobert,<sup>20</sup> of Rostock, says that "our materia medica has been certainly enriched, and quinine hydrochlorate has encountered a powerful rival by the introduction in 1896 of euquinine, which has by now been thoroughly tested. During the past year alone forty recommendatory publications have been issued. Euquinine has four advantages over quinine hydrochlorate: (1) It has so little taste that it may be readily given in soup, gruel, or cacao, even to sensitive women and children; (2) it causes less ringing in the ears, even in children, than does quinine, and does not affect the gastro-intestinal canal in the least; (3) it acts very rapidly, and at least equally as powerfully as quinine in reducing fever, and as an antimalarial (even in masked intermittent fever), and it also effects splenic contraction; (4) it sometimes gives results in cases where quinine has been ineffective, or where it is not well borne."

Dr. Moncorvo,<sup>21</sup> professor of children's diseases at the University of Rio Janeiro, speaks well of euquinine in a comprehensive article regarding the treatment of malaria

<sup>16</sup>*Il Raccoglitore medico di Forlì*, Aug., 1898.

<sup>17</sup>*Wien. klin. Wochenschr.*, 1898, No. 41.

<sup>18</sup>*Brit. Med. Jour.*, 1898, No. 1939.

<sup>19</sup>*Revue médico-pharmaceutique*, 1899, No. 1.

<sup>20</sup>*Deutsche Ärzte-Zeitung*, 1899, No. 2.

<sup>21</sup>*Pediatrics*, 1899, No. 6.

in children. He states that by means of this remedy he has obtained "unquestionable success in obstinate cases in doses of 0.1 Gm. (1½ grn.)."

Dr. Cassel,<sup>22</sup> of Berlin, publishes his results of a careful study of the use of euquinine in eighteen cases of whooping-cough in patients ranging in age from ten months to nine years. His paper is illustrated with temperature and other charts. The remedy was administered either in sweetened water or milk, as convenience indicated. Treatment was always begun with a small dose, and this gradually and cautiously increased. Children four to seven years of age received in the beginning 0.3 Gm. (5 grn.) per day; children one and a half years old, 0.13 Gm. (2 grn.); later on 0.6 to 1 Gm. (10 to 15 grn.) a day were given. One child of nine years took throughout the course of the disease nearly 2 oz. of euquinine. The author says that "in uncomplicated cases of whooping-cough euquinine exerts an undeniably favorable influence upon the disease;" that "by-effects of any kind were never observed, neither tinnitus aurium, nor vomiting, nor exanthema, nor collapse, and on the digestion the euquinine had not the slightest untoward effects." In describing the effects of the remedy upon the disease, he says that "the violence of the individual attacks diminished under the continued use of euquinine; the vomiting ceased in a few days, the nocturnal paroxysms came on less frequently; in short, the entire disease presented a milder character, so that the children quickly recovered; moreover, the duration of the disease was shortened." As his polyclinic patients all had unhygienic surroundings, he considers the results he had as exceedingly encouraging.

Dr. G. Montoro de Francesco,<sup>23</sup> of Belmonte, has used euquinine in seventy-seven cases of malaria, twelve of which were quotidian, forty-four tertian, fourteen quartan, and seven so-called "masked" malaria. The euquinine was given according to the age of the patient, in doses of 11 to 30 grn. (0.75 to 2 Gm.) daily in wafers, or suspended in water or milk. In seventy-four cases its action was very satisfactory, as it effected complete cures, and only in three cases were the desired effects not ob-

tained, but even in these quinine hydrochlorate subcutaneously was also without effect. Unpleasant by effects, such as ringing in the ears and nausea, were observed only in one case, and even these disappeared on long-continued use of the remedy. Euquinine exhibited also a very positive effect on "masked" malaria occurring, manifesting itself as severe neuralgia of the cranial and intercostal nerves. In these cases the various quinine salts had proved useless, even in large doses, and only quinine dihydrochlorate hypodermically was found able to transitorily relieve the severe pains. Several cases were treated with euquinine for some days, however, and were entirely cured, without any symptoms of cinchonism being observed whatever. Euquinine hence appears to be "a most excellent substitute for quinine, and deserves to be preferred to all modern antipyretics, because it reduces the temperature without causing any disturbance of the nervous or vascular system." It appears to be particularly valuable in pediatrics, because of its tastelessness, and in the treatment of patients having an idiosyncrasy against quinine salts. In the author's opinion, euquinine is destined to occupy a prominent position in our materia medica. It is an excellent substitute for the usual quinine salts, because it, in equal doses, exerts exactly similar effects in malarial infections, while causing no toxic symptoms whatever. It is also equal in febrifuge power to the numerous modern antipyretics, and is even superior to many in this respect, as it "reduces the temperature without exerting any pernicious action on the nervous system, heart, or vascular system, such as is observed with antipyrine, acetanilid, etc. It is furthermore decidedly preferable to the usual quinine salts in the treatment of the masked intermittent fevers, and is superior to all the quinine salts in pediatrics, as it is almost tasteless and therefore eagerly taken by children, thus avoiding subcutaneous and rectal administration. Finally, euquinine may be regarded as a sovereign remedy for all malarial subjects having an idiosyncrasy for quinine salts."

Dr. Cesare Loi,<sup>24</sup> of Guspini, has treated 129 cases of malaria of the most varied types with euquinine. Among them were

<sup>22</sup> *Therapeut. Monatsh.*, 1899, p. 190.

<sup>23</sup> *Terapia clinica*, 1899, No. 7.

<sup>24</sup> *Allg. medicin. Central-Zeit.*, 1899, No. 27.

sixty-one children, and "these took the remedy eagerly with water, milk, etc., nor was it ever vomited, as is the case so frequently with quinine." The author ascribes to this fact his numerous cures of malaria of various kinds in children who had been unsuccessfully treated with quinine previously. The doses administered were 0.1 to 0.2 Gm. ( $1\frac{1}{2}$  to 3 grn.) once or twice daily. Adults received 0.5 to 1 Gm. (8 to 15 grn.) several times daily, and in these cases also the euquinine exhibited greater effectiveness, many patients being cured who had previously taken quinine without success. The author points out that "euquinine, by reason of its being tasteless and easily borne, is more readily taken by adults and children than are the quinine salts;" that "it is equal in effectiveness to the latter in malaria in equal doses," and that "it is above all of especial value in pediatrics, on the above-mentioned grounds."

Dr. S. S. Gerenstein<sup>25</sup> says that a remedy which is to be efficient in whooping-cough must be able to lessen the number and severity of the attacks, must be free from bad by-effects, and finally must have no unpleasant taste such as would render its exhibition to children difficult. "Euquinine is such a remedy." The author has treated ten cases of whooping-cough with euquinine, and in every case the excellent effects of euquinine were unmistakable, while "in not a single instance could any pernicious action be observed, although the remedy was given for a long period." Euquinine appears, hence, to be "one of the most valuable of remedies for the treatment of whooping-cough, and deserves to be most widely tried and investigated." Gerenstein, too, states that the chief advantages possessed by euquinine are the absence of unpleasant by-effects such as follow the ingestion of quinine, and its tastelessness, the latter rendering it of particular value in pediatrics, as "children readily take it and do not vomit it again."

Dr. Franz Niedermayr,<sup>26</sup> of Pressbaum, Austria, reports having used euquinine in various affections with uniformly excellent effects. In whooping-cough he found that "it lessened the severity and diminished the frequency of the paroxysms." He had pre-

viously observed that when he treated such cases without quinine, they always became emaciated. When euquinine was used no emaciation occurred. The remedy was given in doses of 3 grn. (0.2 Gm.) two to four times a day in milk and pap, a form of medication which completely overcame the objection which many children make to everything medicinal, whether pleasant or otherwise. The author also employed euquinine in several cases of tuberculosis as an antipyretic, and found that it acted promptly in doses of from 8 to 16 grn. (0.5 to 1 Gm.). The night-sweats in his cases did not appear to be benefited by the euquinine, but the appetite was improved in a number of them. This he attributed more to the general improvement in the condition of the patients consequent on the reduced temperature rather than to any stomachic influence exerted directly by the remedy. The doses employed vary according to the fever. From 102.2° F. (39° C.) and upwards 15 grn. (1 Gm.) was given. In one case of puerperal sepsis euquinine proved ineffective and in a case of severe typhlitis but slight benefit was obtained. In two cases of migraine which resisted other remedies euquinine was at once successful. The author further reports that "euquinine did good service as a tonic and invigorator in several cases of anemia and chlorosis and in a case of neurasthenia." In these cases, as well as in those of migraine, doses of  $1\frac{1}{2}$  to 3 grn. (0.1 to 0.2 Gm.) were given twice a day. He closes his report by stating that "in consequence of its tastelessness and its freedom from untoward by-effects, euquinine is destined to supersede quinine."

Dr. Thomas,<sup>27</sup> privat-docent at the University of Geneva, Switzerland, published the clinical histories of four cases of phthisis and one of syphilis in which he used euquinine. In his résumé he presents the following advantages possessed by euquinine: Absence of all bitterness, and the possibility of getting children and delicate persons to swallow it without the slightest difficulty. The euquinine may be given in very dilute alcohol, in milk or even in substance with a little sugar and swallowed down with a few draughts of water. This is a most important point in infant medication. Generally ready tolerance on the part of the stomach

<sup>25</sup> *Eschenedelnik*, 1899, No. 37.

<sup>26</sup> *Wien. med. Blätter*, 1898, No. 46.

<sup>27</sup> *Jour. des Praticiens*, 1898, Oct. 1.



so frequently in a poor condition. Absence of malaise and cinchonism. A more rapid action than that of quinine, since we see among our invalids a return to the normal temperature in from two to three hours. Among the tuberculous the more rapidly we are able to obtain apyrexia the better.

*Le Scalpel* (1899, No. 40) informs us that "Galliard, of the Hôpital St. Antoine, at Paris, recommends euquinine in the treatment of influenza, as being identical in action with quinine sulphate, while free from bitter taste and the tendency to produce vertigo and tinnitus aurium. He gives adults 2 Gm. (30 grn.) in fractional doses every three hours, until considerable euphoria becomes manifest. He considers euquinine a specially convenient medicament in pediatrics on account of its tastelessness."

The *Pharm. Post*<sup>28</sup> (1899, p. 466) states that "W. Summerskill, of London, England, reports on cases of influenza, accompanied by pneumonia, of measles complicated with acute capillary bronchitis, of severe diarrhea and of croupous pneumonia, all of which he treated successfully with euquinine. In the influenza cases the violent headache was in particular favorably influenced. In a case of measles, with diarrhea, in a three-year-old child, four hourly doses of 0.15 Gm. (2½ grn.) of euquinine, which here served both as an antipyretic and an intestinal disinfectant, arrested the disease whilst opium and astringents had proved of no avail."

Dr. G. Howard Thompson,<sup>29</sup> professor of experimental medicine and therapeutics at the St. Louis College of Physicians and Surgeons, after two years' experience in the use of euquinine, calls it "an agent which, in the truest sense of the word, fills a long-felt want." He reports two cases of cinchona idiosyncrasy which stood euquinine without the slightest manifestation of intolerance. The first case had marked signs of collapse after taking quinine in large or small doses. She took 10-grn. doses of euquinine without ill effect and got over her malaria that before could not be cured. The second case had unusually severe urticarial eruptions whenever he took quinine in doses of any size and whether he

knew what he was taking or not. Ten-grain doses of euquinine cured him of his malaria and without the slightest sign of urticaria. The author reports good results in the use of euquinine in an infant of seven months with ague, of a boy of fourteen years with chronic malarial poisoning, characterized by severe supraorbital neuralgia, and of a boy of three years with chronic malarial poisoning, with a daily fever of 102° F., with headache and neuralgic pains in the back and legs. The recoveries were all prompt and satisfactory. The author has used it satisfactorily in influenza, as well as in the various malarial affections. In concluding his paper, he says: "This remedy I believe completely substitutes quinine sulphate wherever it is indicated in the treatment of diseases of childhood; wherever quinine is not tolerated by reason of idiosyncrasy, and wherever else, for that matter, that quinine sulphate or any other representative of the cinchona group of alkaloids is indicated."

*Medycina* (1897, No. 48) states that "S. Klein, of the First Medical Clinic, Warsaw, Poland, is of the opinion that euquinine is fully equal to quinine in therapeutic efficiency, and can replace it everywhere, but is of special advantage in pediatrics—in malaria, whooping-cough, etc."

The *Gazzetta degli Ospedali e delle Cliniche* (1897, No. 136) declares that P. Conti, physician-in-chief to the Ospedale Maggiore, of Milan, Italy, has employed euquinine in twenty obstinate cases of malaria, all of which were promptly and permanently cured. He concludes that euquinine is perfectly identical with regular quinine in action, and may be substituted for the latter in every case, and he extols its tastelessness, its mild effect on the nervous system, its freedom from untoward action on the stomach and its effect as an appetizer."

Dr. W. R. D. Blackwood,<sup>30</sup> of Philadelphia, in giving the results of his experiences with quinine and euquinine, says of the latter: "In high temperature from any cause this medicament is quite useful, much more so than the ordinary quinine, and specially so with children and infants." \* \* \* In the heat of typhoid euquinine does nice-

<sup>28</sup> Originalabhandlung: *The Therapist*, 1899, No. 4.

<sup>29</sup> *Interstate Med. Jour.*, March, 1899.

<sup>30</sup> *Med. Summary*, August, 1899.

ly; so in pneumonia, and very satisfactorily in pleurisy, where not only the fever, but the pain is controlled. \* \* \* In the chest pains of phthisis this remedy is an appropriate article, being at once a tonic, an antisudorific and a remedy for the enhanced temperature. In intercostal neuralgia euquinine generally acts well, being apparently in this disorder better than for general neuralgias." The author closes his report with the advice: "Try euquinine, my readers, and see for yourselves."

Dr. Arboleda,<sup>31</sup> of Santanda, employs euquinine, usually suspended in a little milk, in whooping-cough, bronchitis, pneumonia, pleurisy, influenza, acute articular rheumatism, and in various forms of neuralgia; in short, in all cases in which quinine was heretofore ordinarily given. The author prefers it to the latter because "it is tasteless, causes no vomiting, does not disturb the appetite or nervous system, and does not irritate the intestines; it may also be given during pregnancy and without danger." The author employs euquinine also in all febrile and catarrhal affections in children and women, by whom quinine salts are not well borne, and has obtained brilliant results. Its action was especially excellent in a very severe and almost hopeless case of capillary bronchitis in a child eight months old; doses of 3 grn. (0.2 Gm.) were given every four hours in this case. Similarly good results were obtained in a series of like cases. The author also reports having given euquinine in malarial fever, especially in children and women, and with splendid results; even in anemia doses of 1½ grn. (0.1 Gm.) twice daily were very serviceable. Arboleda sums up the results of his investigations in the statement that "euquinine, because of its tastelessness, is invaluable in the treatment of children; it causes no nausea or disturbances of the digestive organs, while its action on the nervous system is much less than that of quinine. In addition to this, the therapeutic activity of euquinine is equal to that of quinine, when given in like doses. One is hence able to administer euquinine in all those cases in which quinine is contraindicated, particularly in those in which the latter affects the brain, nervous system, or stomach. As an antineuralgic and tonic euquinine acts better than quinine.

On account of all these valuable properties, euquinine deserves to occupy the first place among all quinine preparations."

Dr. Milton P. Creel,<sup>32</sup> of Central City, points out that in the treatment of remittent fever quinine sulphate is not so frequently employed as formerly, because it irritates the cerebral system, causes severe ringing in the ears, and has a most disagreeable taste. It appears, moreover, to be contraindicated in the treatment of children, women, and nervous cases. The author, hence, always now employs euquinine, which is tasteless, does not affect the brain, and which acts just as promptly as does quinine. It may be very readily given in powder form to women and children; and with doses like those of quinine, the author always obtained prompt and satisfactory results. On exhibiting euquinine in doses of 5 grn. (0.3 Gm.) every four hours, the remittent fever disappeared usually in two days. The author therefore considers it as proven that "euquinine is equally as good an antiperiodic as quinine, and that in every other respect it appears to be far superior."

### Consensus of Opinion

The following conclusions can fairly be drawn from the reports we have quoted:

Euquinine fully replaces ordinary quinine in all its uses and is particularly indicated wherever the bitter taste of the latter, or its tendency to produce gastric, nervous, or other disturbances, preclude its employment.

Euquinine, being fundamentally identical with quinine, is just as powerful therapeutically as quinine sulphate or hydrochlorate.

Euquinine does not produce gastric, nervous, or circulatory derangements, such as are common to quinine when given in large or continued doses, or given to people who are peculiarly and banefully affected by it.

Euquinine produces no such intense ringing in the ears as does quinine, and the slight effect of this kind that is noticed quickly disappears even under augmented dosage, instead of, as in the case of quinine, getting more intense.

Euquinine possesses antispasmodic and antineuralgic properties that are much more pronounced than with quinine.

<sup>31</sup> *Boletín de Medicina del Cauca*, 1899, No. 146.

<sup>32</sup> *Kansas Med. Record*, 1900, No. 2.

## Formulas for the Use of Euquinine

### Abscess:

Euquinine .....30 grn.  
Reduced Iron .....20 grn.  
Strychnine Sulphate ..... ½ grn.  
Make into 20 pills.  
One 3 times daily, after meals.  
(As tonic.)

### Addison's Disease:

Euquinine .....15 grn.  
Hemogallol ..... 1 dr.  
Peppermint Oil Sugar .....30 grn.  
Divide into 12 powders.  
One before each meal.  
(For *anemia* and *debility*.)

### Adynamia:

Euquinine ..... 1 dr.  
Arsen-hemol ..... 1½ dr.  
Strychnine Sulphate ..... 1½ grn.  
Phosphorus ..... 1 grn.  
Make into 60 pills.  
One after meals.

### Alcoholism:

Euquinine .....80 grn.  
Zinc Oxide .....80 grn.  
Strychnine Sulphate ..... 1 grn.  
Arsenous Acid ..... ½ grn.  
Powdered Capsicum .....80 grn.  
Make into 80 pills.  
Two three times daily.  
(For *dipsomania*.)

### Amenorrhea:

Euquinine ..... 1½ dr.  
Ext. Nux Vomica .....12 grn.  
Oil Savine .....30 min.  
Socotrine Aloes ..... 8 grn.  
Cantharides .....24 grn.  
Make into 48 pills.  
One 3 times daily.  
(In amenorrhea from *cold*.)

### Anemia:

Euquinine .....30 grn.  
Dried Iron Sulphate .....40 grn.  
Strychnine Sulphate ..... ½ grn.  
Arsenous Acid ..... ½ grn.  
Make into 20 pills.  
One after each meal.  
(In *malarial anemia*.)

### Angina Pectoris:

Euquinine ..... 1 dr.  
Strychnine Sulphate ..... ½ grn.  
Ext. Taraxacum .....30 grn.  
Make into 15 pills.  
One after meals.  
In cases complicated with *malaria*.)

### Anorexia: (LOSS OF APPETITE.)

Euquinine .....20 grn.  
Ext. Nux Vomica ..... 4 grn.  
Orexine Tannate .....80 grn.  
Make into 20 pills.  
One 3 times daily, before meals.

### Aphonia:

Euquinine .....30 grn.  
Atropine Sulphate .....1-20 grn.  
Ext. Aconite ..... 5 grn.  
Mix thoroughly, mass with glycerite of starch  
or with syrup, and dispense in 6 capsules.  
One morning and night.

### Asthma, Hay:

Euquinine ..... 1 dr.  
Zinc Phosphide ..... 2 grn.  
Ext. Belladonna ..... 4 grn.  
Make into 30 pills.  
One before each meal.

### Atrophy, Muscular:

Euquinine .....1½ dr.  
Strychnine Arsenate ..... 1 grn.  
Syrup .....to make a mass.  
Dispense in 30 capsules.  
One 3 times daily.  
(In conjunction with massage and electricity.)

### Bladder Paralysis:

Euquinine .....20 grn.  
Ergotin (Bonjean) .....40 grn.  
Strychnine Sulphate ..... ½ grn.  
Ext. Taraxacum .....20 grn.  
Make into 20 pills.  
One 3 times daily.

### Bronchitis, Acute:

Euquinine .....30 grn.  
Sodium Bicarbonate .....30 grn.  
Dionin ..... 5 grn.  
Peppermint Oil Sugar .....15 grn.  
Divide into 10 powders.  
One 3 times daily.  
(In *acute* bronchitis.)

### Catarrh, Nasal:

Euquinine .....20 grn.  
Fowler's Solution .....10 min.  
Solut. Atropine (1 per cent).. 4 min.  
Ext. Gentian .....20 grn.  
Powdered Acacia .....to make 12 pills.  
One every 3 or 4 hours. (In *acute* colds.)

Euquinine .....10 grn.  
Atropine Sulphate .....1-30 grn.  
Morphine Sulphate ..... ½ grn.  
Camphor .....10 grn.  
Make into 20 tablets.

One every half-hour for six doses, or until  
throat is dry; then every 2 or 3 hours. (In *acute*  
*colds*.)

### Chlorosis:

Euquinine ..... 1½ dr.  
Dried Iron Sulphate ..... 2 dr.  
Strychnine Sulphate ..... 1½ grn.  
Arsenous Acid ..... 1 grn.  
Make into 60 pills.  
One 3 times daily after meals.

### Chorea:

(acc. to age.)

Euquinine .....2 to 4 dr.  
Reduced Iron .....1 to 2 dr.  
Arsenous Acid .....1 to 2 grn.  
Make into 50 pills.  
One after meals.

### Cramp, Leg:

Euquinine ..... 5 grn.  
Antipyrine .....15 grn.  
Antispasmin ..... 1 grn.  
Take at bed-time in milk, and apply massage.

### Debility:

Euquinine ..... 1 dr.  
Hemogallol .....80 grn.  
Sodium Arsenate ..... 1 grn.  
Peppermint Oil Sugar ..... 1 dr.  
Divide into 24 powders.  
One 3 times daily.



Dipsomania: See ALCOHOLISM.

**Dysmenorrhea:**

Euquinine .....	40	grn.
Stypticin .....	20	grn.
Ext. Belladonna .....	4	grn.
Ext. Hyoscyamus .....	5	grn.
Make into 20 pills.		
One 3 times daily.		
(In <i>neuralgic dysmenorrhea</i> .)		

**Empyema:**

Euquinine .....	2	dr.
Arsenous Acid .....	1	grn.
Dried Iron Sulphate .....	1	dr.
Make into 60 pills.		
One after meals.		
(For the <i>anemia</i> .)		

**Enteritis, Obstructive:**

Euquinine .....	15	grn.
Calomel .....	10	grn.
Powd. Ext. Opium .....	6	grn.
Powd. Ext. Cascara .....	15	grn.
Dispense as 12 powders.		
One night and morning.		

**Erythema:**

Euquinine .....	24	grn.
Ichthalbin .....	2	dr.
Peppermint Oil Sugar .....	20	grn.
Dispense as 12 powders.		
One after meals.		

**Gastritis, Chronic:**

Euquinine .....	30	grn.
Arsenous Acid .....	1	grn.
Ext. Nux Vomica .....	10	grn.
Hemogallol .....	2½	dr.
Mucilage Acacia, {	to make 60 pills.	
Sugar, }		
Two 3 times daily, after meals.		
(Where <i>neurasthenia</i> coëxists.)		

**Glands, Enlarged:**

Euquinine .....	20	grn.
Ichthalbin .....	1½	dr.
Peppermint Oil Sugar .....	20	grn.
Divide into 10 powders.		
One before meals.		

**Goiter:**

Euquinine .....	24	grn.
Strychnine Sulphate .....	½	grn.
Iron Arsenate .....	2	grn.
Ergotin (Bonjean) .....	40	grn.
Ext. Digitalis .....	4	grn.
Make into 24 pills.		
One after meals. Continue for months.		

**Headache, Malarial:**

Euquinine .....	100	grn.
Methylene Blue <i>Medicinal</i> .....	40	grn.
Powd. Nutmeg .....	30	grn.
Put into 20 capsules.		
One 4 times daily.		

**Headache, Nervous:**

Euquinine .....	30	grn.
Zinc Phosphide .....	3	grn.
Reduced Iron .....	30	grn.
Ext. Nux Vomica .....	8	grn.
Make into 30 pills.		
One after each meal.		

**Headache, Neuralgic:**

Euquinine .....	1	dr.
Monobromated Camphor .....	24	grn.
Ext. Hyoscyamus .....	6	grn.
Dispense in 12 capsules.		
One every 4 hours.		

**Hematuria:**

Euquinine .....	8	grn.
Stypticin .....	8	grn.
Ergotin (Bonjean) .....	30	grn.
Make into 16 pills.		
Two every 2 hours till relieved.		

**Hemicrania: See MIGRAINE.**

**Hemoglobinuria:**

Euquinine .....	1	dr.
Monobrom. Camphor .....	24	grn.
Morphine Sulphate .....	1	grn.
Atropine Sulphate .....	1-50	grn.
Powd. Capsicum .....	6	grn.
Divide into 12 powders.		
One every 4 hours.		

**Hemoptysis:**

Euquinine .....	30	grn.
Stypticin .....	18	grn.
Ergotin (Bonjean) .....	1	dr.
Dispense in 12 capsules.		
One every 3 hours till bleeding ceases.		

**Hysteria:**

Euquinine .....	30	grn.
Bromo-hemol .....	1	oz.
Peppermint Oil Sugar .....	2	dr.
Dispense as 60 powders.		
Two morning, 2 noon, 4 at night.		
(As nerve tonic.)		

**Impetigo:**

Euquinine .....	30	grn.
Ichthyol .....	2	fl. dr.
Arsenous Acid .....	¼	grn.
Make into 60 pills.		
Two to three to four, after meals.		

**Impotence:**

Euquinine .....	30	grn.
Phosphorus .....	½	grn.
Strychnine Sulphate .....	½	grn.
Ergotin (Bonjean) .....	15	grn.
Vallet's Mass .....	45	grn.
Make into 30 pills.		
One 3 times daily.		

**Incontinence of Urine:**

Euquinine .....	40	grn.
Strychnine Sulphate .....	1	grn.
Sodium Arsenate .....	2	grn.
Make into 60 pills.		
One after meals. (For <i>child</i> 8 to 10 years.)		

**Influenza: (GRIP.)**

Euquinine .....	30	grn.
Sodium Benzoate .....	30	grn.
Caffeine .....	30	grn.
Dionin .....	7	grn.
Make into 30 pills.		

One 3 or 4 times daily.  
(For *catarrhal symptoms*.)

Euquinine .....	1	dr.
Powd. Ext. Belladonna .....	4	grn.
Codeine .....	4	grn.
Powd. Capsicum .....	1	dr.
Acetanilid .....	1	dr.
Dispense as 20 powders.		
One every 3 hours. (For <i>catarrhal symptoms</i> .)		

Euquinine .....	40	grn.
Strychnine Sulphate .....	¾	grn.
Camphor .....	30	grn.
Ext. Taraxacum .....	20	grn.
Make into 20 pills.		
One every 6 hours. (For <i>depressed circulation</i> .)		

**Influenza (CONTINUED):**

Euquinine .....	24	grn.
Triphenin .....	36	grn.
Salol .....	36	grn.
Dispense as 12 powders.		
One every 2 hours. (For <i>pain</i> and <i>malaise</i> .)		

**Intermittent Fever: (MALARIA.)**

Euquinine .....	100	grn.
Dried Iron Sulphate.....	20	grn.
Arsenous Acid .....	1	grn.
Powd. Capsicum .....	10	grn.
Make into 40 pills.		
Two 3 times daily.		

Euquinine .....	40	grn.
Methylene Blue <i>Medicinal</i> .....	40	grn.
Powdered Nutmeg .....	40	grn.

Dispense in 12 capsules.

One or two 4 times daily for 2 days; then one 3 times daily.

**Labor:**

Euquinine .....	20	grn.
Peppermint Oil Sugar .....	20	grn.
Dispense as 10 powders.		
One every hour. (For <i>uterine inertia</i> .)		

**Laryngismus Stridulus: (SPASMODIC CROUP.)**

Euquinine .....	10	grn.
Hemogallol .....	40	grn.

Dispense as 12 powders.

One, half hour before meals.

(For *anemia* commonly present.)**Leprosy:**

Euquinine .....	40	grn.
Ichthabin .....	4	dr.
Aromatic Powder .....	1	dr.

Dispense as 40 powders.

One, increased to two, before each meal.

(In conjunction with topical treatment.)

**Leucocythemia:**

Euquinine .....	24	grn.
Dried Suprarenal Capsule ....	2	dr.
Arsen-hemol .....	40	grn.
Peppermint Oil Sugar .....	40	grn.

Dispense as 24 powders.

One 2 hours after meals.

Euquinine .....	1	dr.
Arsenous Acid .....	2	grn.
Vallet's Mass .....	3	dr.

Make into 48 pills.

One after meals.

**Leucorrhea: (WHITES.)**

Euquinine .....	1	dr.
Hemogallol .....	4	dr.
Arsenous Acid .....	1½	grn.
Ext. Nux Vomica .....	10	grn.

Make into 120 pills.

Two after meals. (Where *anemia* exists.)**Lichen Urticatus:**

Euquinine .....	1	dr.
Ichthyol .....	3	fl. dr.
Sodium Arsenate .....	1½	grn.

Make into 60 pills.

One, increased to two, after each meal.

(In conjunction with topical treatment.)

Euquinine .....	1½	dr.
Arsen-hemol .....	1	dr.
Ext. Nux Vomica .....	10	grn.

Make into 60 pills.

One after meals.

(In conjunction with local treatment.)

**Locomotor Ataxia: (TABES DORSALIS.)**

Euquinine .....	20	grn.
Arsen-hemol .....	30	grn.
Strychnine Sulphate .....	½	grn.
Ext. Taraxacum .....	20	grn.

Make into 20 pills.

One 3 times daily; gradually increase dose to 2 pills by giving an extra pill every fourth day. (For the *debility*.)**Lupus:**

Euquinine .....	40	grn.
Hemogallol .....	4	dr.
Strychnine Sulphate .....	1	grn.
Arsenous Acid .....	¾	grn.

Make into 80 pills.

Two after meals. (For *debility* and *anemia*.)**Lumbago: (BACKACHE.)**

Euquinine .....	10	grn.
Morphine Sulphate .....	¼	grn.
Syrup Tolu .....	4	fl. dr.

Take at bedtime. Shake well.

**Malaria: See INTERMITTENT FEVER.****Marasmus:**

Euquinine .....	8	grn.
Hemogallol .....	30	grn.
Sugar .....	30	grn.

Dispense as 30 powders.

One thrice daily.

Euquinine .....	20	grn.
Sulphurated Lime .....	5	grn.
Reduced Iron .....	20	grn.

Make in 20 pills.

One 3 times daily.

**Melancholia:**

Euquinine .....	40	grn.
Arsenous Acid .....	1	grn.
Dried Iron Sulphate.....	40	grn.

Make into 40 pills.

One after meals. (As general *tonic*.)**Meniere's Disease:**

Euquinine .....	40	grn.
Bromo-hemol .....	4	dr.
Peppermint Oil Sugar .....	20	grn.

Dispense as 10 powders.

One after each meal.

**Meningitis, Chronic:**

Euquinine .....	40	grn.
Calcium Glycerinophosphate..	2½	dr.
Iodo-hemol .....	2½	dr.

Dispense in 30 cachets.

One after each meal.

**Menopause:**

Euquinine .....	40	grn.
Iron Valerianate .....	1	dr.
Zinc Valerianate .....	20	grn.
Alcoholic Ext. Valerian .....	1	dr.

Make into 30 pills.

One after meals. (For *anemia* and *nervousness*.)

Euquinine .....	30	grn.
Sodium Arsenate .....	1½	grn.
Hemol .....	1	dr.
Ext. Nux Vomica .....	5	grn.

Make into 60 pills.

Two after each meal.

(As *nerve-tonic* and *hematinic*.)**Metritis:**

Euquinine .....	40	grn.
Ergotin (Bonjean) .....	1½	grn.
Strychnine Sulphate .....	¾	grn.

Make into 30 pills.

One after dinner and supper. (As *constitutional treatment* in conjunction with topical treatment.)

**Metritis (CONTINUED):**

Euquinine .....	40	grn.
Ichthalbin .....	3	dr.
Hemol .....	2	dr.
Peppermint Oil Sugar .....	1	dr.
Dispense as 30 powders.		
One 3 times daily, before meals.		
(As <i>alterative</i> and <i>hematinic</i> , with local treatment.)		

**Migraine: (HEMICRANIA.)**

Euquinine .....	30	grn.
Powd. Belladonna .....	10	grn.
Powd. Digitalis .....	15	grn.
Ext. Valerian .....	30	grn.
Honey.....	to make 40 pills.	

Two to ten a day, gradually increased; during  
3 or 4 days before expected attack.

**Morphinism:**

Euquinine .....	1½	dr.
Phosphorus .....	1	grn.
Reduced Iron .....	1½	dr.
Ext. Nux Vomica .....	15	grn.
Make into 90 pills.		
One after each meal. (As <i>restorative</i> .)		

**Mumps: See PAROTITIS****Muscae Volitantes:**

Euquinine .....	20	grn.
Zinc Valerianate .....	20	grn.
Iron Valerianate .....	15	grn.
Dispense in 15 capsules.		
One three times daily.		

**Myalgia: See INFLUENZA and LUMBAGO.****Myelitis:**

Euquinine .....	40	grn.
Strychnine Sulphate .....	1	grn.
Arsenous Acid .....	1	grn.
Dried Iron Sulphate .....	40	grn.
Make into 40 pills.		
One after each meal. (As <i>general tonic</i> .)		

**Nervousness:**

Euquinine .....	1	dr.
Strychnine Sulphate .....	½	grn.
Dried Iron Sulphate .....	30	grn.
Phosphorus .....		grn.
Make into 30 pills.		
One after meals.		

**Neuralgia:**

Euquinine .....	40	grn.
Arsenous Acid .....	½	grn.
Hemogallol .....	2	dr.
Peppermint Oil Sugar .....	1	dr.
Dispense as 30 powders.		
One after meals. (In <i>anemic neuralgia</i> .)		
Euquinine .....	1	dr.
Arsenous Acid .....	1	grn.
Reduced Iron .....	1	dr.
Phosphorus .....	¾	grn.
Ext. Nux Vomica .....	15	grn.
Make into 60 pills.		
One after meals. (In <i>anemic neuralgia</i> .)		
Euquinine .....	24	grn.
Aconitine Crystals .....	1-20	grn.
Atropine Sulphate .....	1-10	grn.
Make into 12 pills.		
One every 4 to 5 hours.		
(For severe pain in <i>malarial neuralgia</i> .)		
Euquinine .....	20	grn.
Dionin .....	6	grn.
Antipyrine .....	45	grn.
Phenacetin .....	45	grn.
Dispense as 6 powders.		
One every 4 hours. (In <i>trigeminal neuralgia</i> .)		

**Neurasthenia:**

Euquinine .....	1	dr.
Arsenous Acid .....	1	grn.
Phosphorus .....	1	grn.
Hemol .....	2	dr.
Ext. Nux Vomica .....	15	grn.
Make into 60 pills.		
One after meals.		

**Neuritis:**

Euquinine .....	1	dr.
Phosphorus .....	1	grn.
Dried Iron Sulphate .....	1	dr.
Ex. Nux. Vomica .....	10	grn.
Make into 60 pills.		
One after meals. (In <i>acute neuritis</i> .)		
Euquinine .....	2	dr.
Colchicine Cryst .....	2	dr.
Dionin .....	30	grn.
Ext. Colocynth .....	1	dr.
Make into 60 pills.		
One 3 times daily.		
(In <i>gouty neuritis</i> .)		

**Otorrhea:**

Euquinine .....	1	dr.
Reduced Iron .....	1	dr.
Sodium Arsenate .....	3	grn.
Ext. Nux Vomica .....	10	grn.
Make into 60 pills.		
One after meals. (As <i>general tonic</i> .)		

**Ozena: (FETID RHINITIS.)**

Euquinine .....	40	grn.
Hemogallol .....	2	dr.
Ichthalbin .....	3	dr.
Peppermint Oil Sugar .....	1	dr.
Dispense as 30 powders.		
One 3 times daily.		
(As <i>constitutional treatment</i> in conjunction with topical applications.)		

**Paralysis Agitans:**

Euquinine .....	40	grn.
Strychnine Sulphate .....	1	grn.
Arsenous Acid .....	2	grn.
Vallet's Mass .....	40	grn.
Ext. Belladonna .....	5	grn.
Ext. Taraxacum .....	20	grn.
Make into 40 pills.		
One 3 times daily.		

**Paralysis, Muscular:**

Euquinine .....	1	dr.
Phosphorus .....	1	grn.
Sodium Arsenate .....	3	grn.
Dried Iron Sulphate .....	1	dr.
Ext. Nux Vomica .....	15	grn.
Make into 60 pills.		
One after meals.		

**Parotitis: (MUMPS.)**

Euquinine .....	20	grn.
Ichthyol .....	1	fl. dr.
Iodo-hemol .....	1½	dr.
Mass, and dispense in 15 capsules.		
One 3 times daily.		
(In conjunction with local treatment.)		

**Pemphigus:**

Euquinine .....	2	dr.
Sodium Arsenate .....	2	grn.
Vallet's Mass .....	1	dr.
Make into 60 pills.		
One after each meal.		
(Simultaneously with topical treatment.)		



**Pertussis: (WHOOPIING-COUGH.)**

Euquinine .....	30	grn.
Hemogallol .....	20	grn.
Peppermint Oil Sugar .....	30	grn.

Divide into 30 powders.

One, increased to three, 4 times daily, in child of 4 to 6 years.

**Pharyngitis:**

Euquinine .....	45	grn.
Arsenous Acid .....	½	grn.
Hemogallol .....	2	dr.
Sugar .....	45	grn.

Dispense as 30 powders.

One after meals.

(As *prophylactic* against recurrence.)**Phthisis:**

Euquinine .....	40	grn.
Orexine Tannate .....	2½	dr.
Powd. Cinnamon .....	20	grn.

Divide into 20 powders.

One 2 hours before two chief meals.

(For *anorexia*.)

Euquinine .....	20	grn.
Strychnine Sulphate .....	1	grn.
Sodium Arsenate .....	1	grn.
Ext. Gentian .....	20	grn.

Make into 20 pills.

One before meals. (For *dyspnea*.)

Euquinine .....	30	grn.
Stypticin .....	18	grn.
Ergotin (Bonjean) .....	1	dr.

Dispense in 12 capsules.

One every 3 hours till bleeding ceases.

(For *hemoptysis*.)

Euquinine .....	1½	dr.
Elixir Taraxacum .....	4	fl. oz.

Teaspoonful hourly for six hours.  
(For *hectic fever*.)

Euquinine .....	40	grn.
Strychnine Sulphate .....	½	grn.
Calcium Lactophosphate .....	2	dr.
Dried Iron Sulphate .....	1	dr.

Make into 60 pills.

Two 3 times daily. (As *tonic*.)**Pityriasis Simplex:**

Euquinine .....	1½	dr.
Arsenous Acid .....	1	grn.
Reduced Iron .....	1	dr.
Ext. Nux Vomica .....	10	grn.

Make into 60 pills.

One after each meal.

(In conjunction with local treatment.)

**Pleurisy, Chronic:**

Euquinine .....	30	grn.
Ichthalbin .....	3	dr.
Hemogallol .....	2	dr.
Peppermint Oil Sugar .....	1	dr.

Dispense as 24 powders.

One before meals.

(As *alterative* and *hematinic*.)**Pneumonia:**

Euquinine .....	1	dr.
Hemogallol .....	2	dr.
Orexine Tannate .....	2	dr.
Peppermint Oil Sugar .....	1	dr.

Divide into 30 powders.

One, an hour before meals.

(For *anorexia* and *anemia* following.)**Prostatitis, Chronic:**

Euquinine .....	45	grn.
Hemogallol .....	2	dr.
Arsenous Acid .....	½	grn.
Sugar .....	1	dr.

Dispense as 30 powders.

One after meals. (For *anemia* and *debility*.)**Prurigo:**

Euquinine .....	1½	dr.
Sodium Arsenate .....	3	grn.
Dried Iron Sulphate .....	1	dr.
Ext. Nux Vomica .....	10	grn.

Make into 60 pills.

One after each meal.

In conjunction with topical treatment.

**Pruritus:**

Euquinine .....	30	grn.
Ext. Cannabis Indica .....	3	grn.
Strychnine Sulphate .....	1	grn.

Make into 24 pills.

One after each meal.

(In *debilitated* subjects.)**Psoriasis:**

Euquinine .....	20	grn.
Arsen-hemol .....	80	grn.
Powd. Ext. Licorice .....	20	grn.
Mucilage Acacia .....	to make 50 pills.	

Three pills a day, after meals. Increase every fourth day by 1 pill a day until 10 are being taken daily; then decrease same way. When daily dose of 3 pills is reached again, discontinue for few days, to resume as before.

(Constitutional treatment, in conjunction with topical measures.)

**Purpura Simplex:**

Euquinine .....	1½	dr.
Arsenous Acid .....	1	grn.
Dried Iron Sulphate .....	1	dr.
Ext. Nux Vomica .....	10	grn.

Make into 60 pills.

One after meals.

(As *alterative* and *hematinic*.)**Rachitis: (RICKETS.)**

Euquinine .....	10	grn.
Calcium Phosphate .....	1	dr.
Hemogallol .....	1	dr.

Dispense as 30 powders.

One before meals, for child of 2 years.

**Relapsing Fever:**

Euquinine .....	1	dr.
Thalline Sulphate .....	24	grn.
Ext. Cascara Sagrada .....	30	grn.

Dispense in 24 capsules.

Two 3 times daily at first, then 1 thrice daily.

**Remittent Fever:**

Euquinine .....	2	dr.
Arsen-hemol .....	1½	dr.
Powd. Ext. Licorice .....	1	dr.
Mucilage Acacia .....	to make 60 pills	

One after meals. Increase every fourth day by 1 pill a day until 10 are taken daily; then decrease same way. When daily dose of 3 pills is again reached, discontinue for few days; then resume as before.

Euquinine .....	1	dr.
Hemogallol .....	40	grn.
Peppermint Oil Sugar .....	20	grn.

Divide into 12 powders.

One every 4 hours. (In *mild type*.)

**Remittent Fever (CONTINUED):**

Euquinine .....	1	dr.
Arsenous Acid .....	$\frac{1}{3}$	grn.
Powd. Opium .....	6	grn.
Powd. Capsicum .....	30	grn.

Dispense as 12 powders.

One 3 times daily. (In *severe type*.)

Euquinine .....	1	dr.
Hemogallol .....	2	dr.
Sodium Arsenate .....	3	grn.
Ext. Nux Vomica .....	5	grn.

Make into 60 pills.

Two 3 times daily. (For *neurasthenia*.)**Rheumatism:**

Euquinine .....	20	grn.
Acetanilid .....	30	grn.
Caffeine .....	5	grn.
Monobromated Camphor .....	20	grn.
Dionin .....	5	grn.
Lemon Oil Sugar .....	20	grn.

Dispense as 10 powders.

One every 4 hours, or 3 times daily. (In *acute articular rheumatism*, to control *pain* and *fever*.)

Euquinine .....	30	grn.
Resin Guaiac .....	48	grn.
Sodium Arsenate .....	1	grn.
Aloin .....	3	grn.

Make into 24 pills.

One after each meal.

(In *chronic articular rheumatism*, when *anemia* and *constipation* coëxist.)**Rickets:** See RACHITIS.**Scarlatina: (SCARLET FEVER.)**

Euquinine .....	10	grn.
Triphenin .....	15	grn.
Sugar .....	20	grn.

Dispense as 10 powders.

One every 4 hours as required, for child of 4 years. (For *fever*.)

Euquinine .....	15	grn.
Hemogallol .....	1	dr.
Lemon Oil-sugar .....	1	dr.

Divide into 30 powders.

One before meals, to child of 4 years.

(During *convalescence*.)**Scleroderma:**

Euquinine .....	1	dr.
Arsen-hemol .....	1	dr.
Dried Iron Sulphate .....	40	grn.
Ext. Nux Vomica .....	5	grn.

Make into 40 pills.

One after each meal.

**Scrofula:**

Euquinine .....	50	grn.
Iodo-hemol .....	5	dr.
Ext. Licorice .....	to make 100 pills.	

Two to four pills thrice daily. (For *adults*.)

Euquinine .....	40	grn.
Hemogallol .....	2	dr.
Ichthalbin .....	4	dr.

Dispense as 30 powders.

One before meals. (For *adults*.)**Scurvy: (SCORBUTUS.)**

Euquinine .....	45	grn.
Iron Arsenate .....	1	grn.
Ext. Nux Vomica .....	6	grn.

Make into 24 pills.

One after meals, for *adults*.(During *convalescence*.)**Scurvy (CONTINUED):**

Euquinine .....	40	grn.
Strychnine Sulphate .....	$\frac{1}{2}$	grn.
Arsenous Acid .....	1	grn.
Vallet's Mass .....	2	dr.

Make into 30 pills.

One after meals, for *adults*.(During *convalescence*.)**Small-pox: (VARIOLA.)**

Euquinine .....	$1\frac{1}{2}$	dr.
Salol .....	4	dr.
Peppermint Oil Sugar .....	30	grn.

Dispense as 24 powders.

One every 4 hours. (For *pyemia* and *fever*.)**Spermatorrhea:**

Euquinine .....	30	grn.
Iron Valerianate .....	20	grn.
Zinc Valerianate .....	20	grn.
Oleoresin Lupulin .....	30	grn.

Make into 20 pills.

One 3 times daily. (For *general debility*.)**Spleen, Enlarged:**

Euquinine .....	1	dr.
Arsenous Acid .....	$1\frac{1}{2}$	grn.
Ergotin (Bonjean) .....	1	dr.
Berberine Phosphate .....	$1\frac{1}{2}$	dr.

Mass, and dispense in 24 capsules.

One 3 times daily.

**Sunstroke:**

Euquinine .....	1	dr.
Triphenin .....	45	grn.
Sugar .....	30	grn.

Divide into 12 powders.

One every 4 hours. (For *fever*.)**Sycosis:**

Euquinine .....	$1\frac{1}{2}$	dr.
Arsenous Acid .....	1	grn.
Ichthalbin .....	6	dr.
Hemogallol .....	4	dr.
Peppermint Oil Sugar .....	2	dr.

Dispense as 60 powders.

One after each meal.

(In conjunction with topical treatment.)

**Syphilis:**

Euquinine .....	40	grn.
Mercury Bichloride .....	2	grn.
Strychnine Sulphate .....	1	grn.
Ext. Phytolacca .....	20	grn.
Dried Iron Sulphate .....	30	grn.
Ext. Taraxacum .....	1	dr.

Make into 60 pills.

One 3 times daily, gradually increasing to 2 or 3 pills thrice daily. (In *primary syphilis*.)

Euquinine .....	1	dr.
Dried Iron Sulphate .....	1	dr.
Mercurio-iodo-hemol .....	5	dr.
Powd. Licorice, } .....	to make 150 pills.	
Ext. Licorice, }		

Three 3 times daily. (In *secondary syphilis*.)**Tetanus:**

Euquinine .....	1	dr.
Hemogallol .....	45	grn.
Camphor .....	24	grn.

Dispense in 24 capsules.

Two every 4 hours. (To lessen *depression*.)**Tonsillitis:**

Euquinine .....	10	grn.
Dover's Powder .....	10	grn.

For 1 powder.

Take at bedtime.

(In *quinsy* sore-throat, before pus has formed.)

**Tonsillitis (CONTINUED):**

Euquinine .....	30	grn.
Iodo-hemol .....	2	dr.
Ichthalbin .....	2	dr.
Peppermint Oil Sugar .....	30	grn.

Divide into 24 powders.

One after meals. (As roborant during *convalescence* from phlegmonous tonsillitis.)**Torticollis: (WRY-NECK.)**

Euquinine .....	20	grn.
Strychnine Sulphate .....	$\frac{1}{4}$	grn.
Ext. Conium .....	7	grn.
Ext. Belladonna .....	2	grn.

Make into 15 pills.

One after meals. (In *spasmodic* contraction.)**Tremor:**

Euquinine .....	2	dr.
Arsenous Acid .....	$1\frac{1}{2}$	grn.
Phosphorus .....	1	grn.
Dried Iron Sulphate .....	$1\frac{1}{2}$	dr.

Make into 90 pills.

One after each meal. (As *tonic*.)**Trichinosis:**

Euquinine .....	$1\frac{1}{2}$	dr.
Sodium Arsenate .....	3	grn.
Hemogallol .....	5	dr.
Peppermint Oil Sugar .....	$1\frac{1}{2}$	dr.

Make 60 powders.

One after meals.

(As *restorative* during *convalescence*.)**Tuberculosis, Pulmonary: See PHTHISIS.****Typhilitis:**

Euquinine .....	$1\frac{1}{2}$	dr.
Arsenous Acid .....	1	grn.
Hemogallol .....	4	dr.
Ext. Nux Vomica .....	10	grn.

Make into 120 pills.

Two after each meal.

(For *anemia* and *debility* following.)**Typhoid Fever:**

Euquinine .....	40	grn.
Triphenin .....	40	grn.
Sugar .....	20	grn.

Divide into 10 powders.

One as required. (For *high fever*.)

Euquinine .....	$1\frac{1}{2}$	dr.
Hemogallol .....	4	dr.
Ext. Nux Vomica .....	10	grn.

Make into 120 pills.

Two before each meal.

(For *anemia* following.)**Typhus Fever:**

Euquinine .....	40	grn.
Triphenin .....	40	grn.
Aromatic Powder .....	20	grn.

Dispense as 10 powders.

One every 4 hours. (When *fever is very high*.)

Euquinine .....	1	dr.
Phosphorus .....	1	grn.
Arsenous Acid .....	1	grn.
Hemol .....	2	dr.
Ext. Nux. Vomica .....	10	grn.

Make into 60 pills.

One after each meal.

(As roborant during *convalescence*.)**Urticaria:**

Euquinine .....	15	grn.
Ergotin (Bonjean) .....	12	grn.
Ext. Belladonna .....	$\frac{1}{2}$	grn.

Make into 16 pills.

One every 2 hours. (In *acute* urticaria, in conjunction with topical treatment.)

Euquinine .....	1	dr.
Strychnine Sulphate .....	1	grn.
Arsen-hemol .....	$1\frac{1}{2}$	grn.

Make into 60 pills.

One after each meal.

(In *chronic* urticaria, especially *neurotic* cases.)**Vaginismus:**

Euquinine .....	$1\frac{1}{2}$	dr.
Calcium Glycerinophosphate ..	5	dr.
Hemol .....	4	dr.
Powd. Ext. Nux Vomica .....	10	grn.

Dispense in 120 capsules.

Two after meals, followed by draught of water.

(As *nerve-tonic*, in conjunction with topical measures.)**Varicocele:**

Euquinine .....	30	grn.
Ergotin (Bonjean) .....	30	grn.
Ext. Nux Vomica .....	5	grn.
Arsen-hemol .....	30	grn.

Make into 24 pills.

One 3 times daily, after meals. (Use cold douche to parts daily, and support scrotum in well-fitting suspensory bandage.)

**Varicose Veins:**

Euquinine .....	1	dr.
Hemogallol .....	$2\frac{1}{2}$	dr.
Ichthyol .....	3	fl. dr.

Mass, and dispense in 40 capsules.

One before each meal. (To *improve circulatory system* and general condition.)**Vertigo**

Euquinine .....	30	grn.
Hemol .....	$1\frac{1}{2}$	dr.
Calcium Glycerinophosphate ..	2	dr.
Powd. Ext. Nux Vomica .....	4	grn.

Dispense in 24 capsules.

One before meals.

(In *nervous* vertigo, as tonic.)**Yellow Fever:**

Euquinine .....	30	grn.
Antipyrine .....	30	grn.
Acetanilid .....	30	grn.
Caffeine .....	6	grn.

Divide into 12 powders.

One every 3 or 4 hours till temperature falls.

(For *high fever*.)

Euquinine .....	1	dr.
Triphenin .....	1	dr.
Peppermint Oil Sugar .....	20	grn.

Make into 12 powders.

One every 4 hours till temperature falls.

(For *high fever*.)



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### Food Preservatives and Physiology

AT present the question of the preservation of various kinds of food by the use of antiseptics is creating considerable discussion in this country and Europe. The ultra-conservatives, here as on every other occasion, think old methods good enough for them, and they are prepared to do battle to everything in the shape of an innovation. Salt and creosote from smoke, saltpeter and vinegar are deemed harmless because they have been in use for ages and no one now dares to challenge their use for fear of becoming the butt of ridicule in the community; but boric acid and borax, salicylic acid and formaldehyde are the newcomers in the field and can be freely challenged for their credentials. This of course is right so long as fair reasoning and honest facts alone are presented against them, but when those who oppose their use do so by reasons that apply with equal vigor to the old methods, and by appeals to an artificially created popular prejudice, they are not advancing truth nor helping progress. No one can honestly oppose the efforts of experimentors who are trying to settle the question of the desirability or undesirability of employing these substances in food, and even though the conclusions they may draw from their experiments may not be finally sustained as sound, yet they help

toward the final solution of the problem. Physiological experiments are particularly valuable in this connection and therefore all work of this kind should be encouraged irrespective of consequences. When such experiments are performed by skilled men they are sure to be of great worth. In this connection we are pleased to observe that Professor Halliburton, of King's College, London, has taken up the subject from the physiological side and performed some experiments that go to show that boric acid, borax and formaldehyde in small amounts interfere with artificial digestion, *in vitro*, and in larger amounts inhibit it. He finds borax more active in inhibiting the action of the rennet ferment than boric acid. Formaldehyde is particularly active in inhibiting the various enzymes, and on this ground the professor thinks that none of these agents should be used as preservatives of food. When we come to examine his conclusion we are at a loss to see any connection between it and his experiments. Turning to his declaration of the views which he entertained before he began his experiments, it becomes quite plain that they, and not the experiments, were the inspiring factors of his conviction. Whoever entertains such views cannot help but be opposed to all kinds of preservatives, on general principles, and will

naturally conclude that whatever injuriously affects the digestive enzymes must injuriously affect the organism. Take, for instance, his statement that "an antiseptic is inimical to the life of the organisms that cause putrefaction; it cannot, therefore, be harmless to the vital processes in the higher animals." How could it be possible for any person entertaining such an idea to draw any other conclusion from his experiments than he did? The conclusion was a necessity of his method of reasoning and not of his experiments. But on what grounds does Professor Halliburton proclaim such a doctrine? Is it true that because antiseptics kill germs that therefore they must injure us? What evidence is there for such a statement, and how comes Professor Halliburton to entertain it? Sugar in concentrated solution is inimical to the organisms of putrefaction and should therefore be inimical to human life, if he is correct. Muriatic acid in quite dilute solutions is inimical to the life of the organisms of putrefaction. Is it logical to conclude therefrom that sugar or this acid "cannot, therefore, be harmless to the vital processes in the higher animals?" Certainly a professor of physiology knows better. There is no evidence for such a belief in the facts of physiology. Indeed, the evidence is all on the opposite side of the question. Many things are inimical to the bacteria of putrefaction that in no way injure the human organism if administered in *small amount*. Dr. Halliburton says that "even if, as in the case of boric acid and borax, the poison is not cumulative, the continuous passage of foreign substances through the kidneys cannot be beneficial to those organs." In using boric acid or borax as preservatives it is not a question of benefiting the kidneys. It is enough to know that it does not injure them. Probably he meant by the statement that such substances must injure them. The old notion that the passage of foreign substances through the kidneys injured them has never had a particle of evidence to sustain it. One of the functions of the kidneys is to carry off just such foreign substances and soluble mineral compounds as enter

the blood from the food we eat. Why should an organ be injured by performing its normal function? Foreign substances are continually passing through the kidneys without injuring them. The amount varies very materially with the character of the soil and of the water of the region we inhabit. The kidneys can and do carry off vastly greater amounts of single foreign substances, where people are in the habit of taking saline cathartics, than those ever are who use food in which a few grains of a preservative has been placed. It is now generally held that pathogenic organisms, and not soluble foreign substances, are the cause of kidney disease, but the old notion still persists that the kidneys will be injured by small amounts of such substances. When Dr. Halliburton shows us that the boiling of milk and the cooking of proteids makes them harder to digest and then adds that "most gastric juices are able to grapple with this difficulty," he answers himself completely. Borax, boric acid, salicylic acid, formaldehyde, creosote, salt, sugar, alcohol, saltpeter and glycerine, all seem to do just what the cooking of food does, so far as hindering digestion is concerned. If a steak is overbroiled it is harder to digest, and if sufficiently overbroiled it cannot be digested at all. Any broiling hinders its digestion. To condemn preservatives because they affect digestion in the same way as cooking does is to also condemn cooking. To stop the use of preservatives because they may be used to excess would argue that we should stop cooking of meat, eggs, etc., for the same reason. Dr. Halliburton's logic would stop the use of salt, smoke, saltpeter, and other old preservatives as well as cooking. His excuse for the cooking is just as good an excuse for the use of formaldehyde, borax, or salicylic acid. In all discussions of this kind the fact seems to be lost sight of that things which injure the body if administered in large quantities may benefit the body when given in sufficiently *small amounts*. There may be some exceptions to this rule; if there are any, they are but very few and not at all important.

# The Effect of Alcohol on the Human System

PHYSIOLOGICAL, PATHOLOGICAL, AND THERAPEUTIC

By SAMUEL H. JOHNSON, M.D., Asbury, N. J.

IN order to fully understand the therapeutic use of a drug, it is paramount to first know its physiological action as well as the pathological conditions it would produce.

It is safe to assume that alcohol and its congeners have been more shamefully abused by routine prescribing than any other drug in the materia medica. Some physicians affirm that alcohol in small doses acts as a tonic. As the property of tonics is to increase the activity of the organ or organs for which they are given in order to either partly or completely restore them to their normal condition, they at the same time increase the contractility of the walls of the blood vessels, which increases the blood pressure in the arteries: and while this effect is made manifest after the ingestion of small doses of alcohol, it is of short duration, and is followed by a longer stage of depression, which is conclusive that the so-called tonic effect of alcohol in small doses is really but a manifestation of its stimulant effect.

Absolute alcohol, when introduced into the stomach acts as an extremely powerful corrosive poison: by its chemical action upon the tissues of the stomach its absorption into the current of circulation is prevented; as a result there is no direct action of its poisonous effect upon the brain. In such instances, death is due to the violent impression it produces on the gastric nerves, and especially upon the sympathetic nerves of the heart, and it being the only organ within the body that has nerve centers of its own, independent of the cerebro-spinal system, the impression it receives is therefore greater than any other organ in the body, and by this violent action its function is suspended and death is brought about by syncope or cessation of the heart's action.

As the red blood cells convey oxygen to all parts of the body, by its being in direct

contact with the alcohol, combustion takes place in the blood at the expense of the oxygen and thus converts a portion of the alcohol into carbon dioxide, a gas which is exceedingly poisonous to animals. This causes the blood within the arteries to have a venous aspect. This chemical change in the blood and the admixture of alcohol in the current of circulation exerts a direct action on the nerve centers, which greatly retards the respiratory movements. Hence it is that in the greater number of deaths resulting from the introduction of dilute alcohol into the stomach, by its rapid passage into the current of circulation, by the chemical change it causes in the arterial blood, together with its direct action upon the nerve centers and especially over that portion which governs respiration, that death is produced by asphyxia or cessation of the function of the lungs as it does in death by other narcotics.

Among the first phenomena after the ingestion of enough alcohol to produce its characteristic effects, there is an increase in the force and frequency of the heart's action with a corresponding increase of blood pressure in the arteries, stimulating the organic functions, and the phenomenon of intoxication speedily ensues. The brain is stimulated to greater activity; the senses are more acute; ideas become clearer; speech fluent, and conversation animated: there is a happy present, with a fond hope of the future. With this there is an increase of muscular movement, manifested by gesticulations and a desire to be moving about. If no more liquor be taken than to produce this condition it quickly subsides and is followed by a condition of the opposite character. There is depression of the organic functions, the secretions are diminished, the spirits depressed, and for a time the power of mental exertion impaired. If a larger



quantity be taken to produce a more potent effect, and it be repeatedly renewed, the second stage is speedily induced. The voluntary control over the one train of thought so characteristic of the sane mind becomes lost, ideas are confused, speech incoherent, and the excitement has more the character of a delirium; at the same time the muscular movement becomes impaired, the gait becomes doubtful and staggering; as the want of co-ordination ceases standing becomes impossible and the subject involuntarily becomes prostrated. If a toxic dose be taken, the most profound stage is speedily induced. The subject lies in a state of coma as profound as that of apoplexy. The face is now deeply flushed, livid, or pale; the functions of organic life are feebly performed and if the poisonous influence is further extended to the centers governing these movements, respiration and circulation are arrested. Those who are habituated to the use of alcoholic liquors often suffer from symptoms which are included under the collective term of dyspepsia. In the morning there is often a complete loathing for food with muscular weakness and great nervous depression. The frequent congestion and over stimulation of the mucous membrane of the stomach causes a chronic inflammation or gastric catarrh. The increase of connective tissue, by encroaching upon the glands of the stomach, causes them to atrophy; as a result an inferior quality of gastric juice is secreted. The presence of dilute alcohol in the stomach with this secretion causes acid fermentation. It is this change which produces the peculiar retching and vomiting of matters so characteristic of the drunkard. On the liver alcohol has a direct action. By its increased blood supply there is an increase in the formation of connective tissue. This encroachment upon the glands of the stomach causes them to shrink in size and at the same time this newly formed connective tissue contracts and the surface of the liver becomes nodulated. To this condition the term cirrhosis or drunkard's liver has been given. On the kidney, by its stimulating

effect causing an increased blood supply, augmenting its secretion, it first acts as a diuretic, but the excessive indulgence in its use produces chronic inflammation known as interstitial nephritis.

On the circulatory system, the heart is increased in force and frequency, with a corresponding increase of blood pressure in the arteries. This is soon followed by a corresponding depression; the heart becomes weaker, the small blood vessels at the periphery by the temporary paralysis of the nerves governing them dilate and a feeling of warmth of the whole body quickly follows. In those habituated to the use of alcohol the heart undergoes hypertrophy. There is an increase in the size of the muscular fibers and in the chronic beer drinker there is also an excessive development of fat, which leads to a rapid, but feeble and often irregular action of the heart. The peripheral circulation becomes permanently impaired, causing the mottled face and rubicund nose so characteristic of the drunkard.

While there is no part of the body that alcohol does not affect, it is upon the central nervous system that it exerts its most powerful influence. As a result, to those habituated to its use, by the frequent overstimulation of that organ, and by the direct action of alcohol on the brain, important structural changes follow, attended with remote objective symptoms, which, when taken collectively, afford positive proof of diseases that are in the incipient stages of progress; chief among them are delirium tremens and alcoholic insanity. Statistics show us that over twenty per cent. of all cases of mental alienation are traceable to intemperance.

Having shown the immediate and remote action of alcohol upon the body in general, let us now see if it is in any way useful or beneficial to man for the support of bodily exertion or to withstand the extremes of temperature. It is by the muscular apparatus that all bodily exertion is performed. This is called into play and is under the direct control of the nervous system. For the fullest evolution of physical power it is essential that the organs

of the body shall be properly nourished and in a healthy condition and that the muscular system should receive an adequate excitation from the nervous, as the amount of muscular force put forth on any occasion depends, other things being equal, on the degree of nervous power which is used to operate on the muscles.

Now if the nervous and muscular apparatus be inadequately nourished it can be readily understood how impossible it is that their normal power can be developed if required except under the influence of stimulants. This is favorable to the development of muscular power or to prolong its generation as long as this activity continues. But such a state cannot long endure, and as every exertion involves the death and decay of a certain amount of the tissues, there is a limit to the possibility of its generation, so that the continuance or even the increase of the stimulus ceases after a while to produce any effect and the exhausted power can only be recovered by a lengthened period of repose for the regenerating process to be performed. In considering this question it is very important to keep in view the difference between a temporary and a sustained effort. I have already shown how the presence of alcohol in the blood by its chemical change retards oxidation. Now the oxygen of the blood in the nervous and muscular system is essential for their functional activity. The presence of alcohol in the blood also checks the removal by oxygenation of the products of decomposition, which, if habitual, by its inducing such a vitiation of the blood as to impair its fitness for the manifold purposes which it is designed to answer, is attended with most serious injury to the system. It has been conclusively proven by comparison in exploring expeditions and military service that the total abstainer had greater physical powers of endurance and was less susceptible to heat and cold than those who relied upon their accustomed stimulant. Moreover, there is one fact well known and conceded by all, that nowhere in history do we find a nation or race that had greater physical powers of endurance than

the American Indians prior to the introduction of alcohol by the European nations.

All that has been said of alcoholic stimulants for the development and maintenance of physical force will equally apply to mental power. As the brain is the instrument by which all mental power is exercised, the ingestion of a small amount of alcoholic stimulants is attended in most persons by a temporary increase of mental activity; by its exciting the activity of the creating and combining powers, there is in many a rapid and brilliant flow of thought, such as gives rise to poetical imaginations, artistic conceptions, or sallies of wit and humor. Neither can it be denied that the depression which follows the mental excitement is peculiarly great in such individuals. Experience has shown, where men endowed with rare intellectual powers, by their habitual resorting to stimulants for an exaltation of ideas, by the sudden depression which follows, have had their lights extinguished in the noon-time of life. Moreover, the greater part of that intellectual labor which has extended the domain of human knowledge has been performed by men of remarkable sobriety of habit.

There is a general belief that alcoholic liquors enable the body to resist the depressing influence of cold. This is by no means surprising. When a glass of spirits is taken on a cold day, it causes in the stomach a feeling of warmth, and by its increasing the action of the heart and cutaneous circulation is quickly followed by a sense of warmth of the whole body which to the subject affords unmistakable evidence of its heat-producing power, and while at this time there is a slight rise in temperature, by the quickened circulation at the periphery, there is also a corresponding loss of heat from the body. The slight rise in temperature is due to the increase of the organic functions and the increased combustion going on in the body, and by being burned off before it can accumulate, it does not exert any considerable influence upon the nervous system. Under such circumstances it is usually

taken when the stomach is empty. The glass of spirits taken in this condition affords the material for the combusive process by which the heat of the body is sustained; every one knows how much more severely cold is felt after a fast of some hours' duration than after a full meal.

These facts are of great importance. Even under such trying circumstances alcohol does not take the place of food. The inhabitant of the Arctic regions, who relies chiefly on his solid aliment, which contains a great amount of oleaginous matter, for his power of resisting cold, does not dread the exposure of his person to cold of the greatest severity. Allied to the use of alcoholic liquors to enable the body to withstand the depressing influence of external cold is the belief in its use to assist in supporting the system during excessive loss by perspiration under the enervating influence of a high temperature. If such a belief can be sustained, then there must be some *modus operandi* different from that which renders alcohol serviceable in the opposite condition; for it cannot be of any service as a pabulum for the combusive process when the body is already generating all the heat it can possibly need when exposed to a high external temperature, neither can it take the place of the watery portion of the blood.

The only effect that excessive perspiration can have upon the system is to diminish the quantity of water in the blood, which can be readily supplied by absorption of water from the stomach. In fact such perspiration may be made to conduce very decidedly to the invigoration of the system, as every one knows who has tried the Russian bath, to the feelings of renovation which the copious perspiration and subsequent plunge in cold water produce in the wearied frame. This alone is quite sufficient to set aside the idea that the act of perspiration is in itself exhausting or that it removes from the system anything which alcohol can supply.

As the stimulating effect of alcoholic liquids is but little felt when exposed to severe cold, owing to its rapid combustion before it can accumulate enough to exert

much influence on the nervous system, so we might expect that under the influence of external heat, when the combusive process is greatly reduced in activity, that the stimulant effect of alcohol should be more rapidly produced and more powerfully exerted. For it is well known that a much smaller quantity suffices to produce intoxication beneath a burning sun than in a cold atmosphere; and some individuals who, not being aware of this fact, by their taking freely of alcohol when exposed for a short time to severe cold, have soon become intoxicated after entering a heated room. Whatever, then, its use may communicate to the body, must be derived from its stimulating properties.

As the respiratory process in warm-blooded animals is much less energetic at a high temperature than at a low one, it is through this channel that the system has the power of regulating the amount of matter which it shall burn off in order that its heat may be kept up to the normal standard in the different degrees of temperature to which it is exposed. The amount of carbonic acid given off from the body is much less in a given time at a high temperature than at a low one; it is obvious, then, that the demand for combusive material is comparatively small. Hence it is that the inhabitants of tropical climates do not require the same supply of heat-producing food as is needed by those of the Arctic regions. The Esquimau relies upon his solid aliment, which contains a great amount of oleaginous matter, for his power of resisting cold, while the inhabitants of the Equatorial regions subsist chiefly upon farinaceous vegetable products which have the lowest heat-producing agency.

It may not be amiss to say here that it is through the medium of the water contained in the body that all its vital functions are carried on, and no other liquid can act as a solvent for the various articles of food which are taken into the stomach. It is water that forms all the fluid of the blood and serves to convey the nutritive material through the minutest vessels to every portion of the body. It is impos-



sible, then, that the habitual admixture of any other fluid, especially of one which, like alcohol, possesses such a physical, chemical and vital influence upon the components of the body, can be otherwise than injurious; and where benefit is derived from its use, it depends upon the fact that the abnormal condition of the system renders one or more of the special actions of alcohol remedial instead of noxious.

We have seen that alcohol when introduced into the circulation acts as a stimulant to the heart and also increases the excitability of the nervous system, and that it is the means of equalizing and keeping up the animal heat when other means are deficient. Hence it may be advantageously employed to assist in rousing the system from the effects of those agencies which threaten for a time to produce a fatal depression of the vital powers, as in severe injury that produces a violent shock, from which primarily it often appears that the system is likely to sink. As it requires no digestion, it is valuable in those critical cases where ordinary nourishment cannot be taken.

There is another class of cases in which it is of equal importance to keep up the vital powers, knowing that if this can be accomplished for a few days, or perhaps only a few hours, the patient has a fair chance of recovery. Of such we have examples in hemorrhage and many forms of fever, especially those which run a

cyclical course, or with a very high temperature. The immediate cause of death in such cases appears to be a failure of the power of the heart, manifested by the contractions becoming progressively feebler and more rapid; at the same time the skin and tongue become dry and the latter heavily coated. With this we often have a low muttering and restless delirium. In this condition some of the alcoholic preparations are indicated. Upon the administration of alcohol, if the skin becomes moist, the tongue clears off, the heart's action reduced, the patient becomes more tranquil and disposed to sleep, it is the drug par excellence, and by its timely administration many a death-bed scene has been averted.

In the convalescence from acute diseases; in the depression which follows the loss of blood, and in the extremes of life, alcohol is well borne, and is of very great benefit.

Many children whose parents are addicted to the abuse of alcoholic beverages are physically weak; they succumb more readily to injuries and acute diseases; the mental faculties are enfeebled in every degree from a slight aberration to idiocy. In some, while they appear intellectually well developed, yet the baser propensities predominate. They become addicted to habits of vice and form the greater part of the criminals of our land to-day.

[Written for MERCK'S ARCHIVES]

## Marked Poisoning from Five Grains of Quinine

By FRANKLIN W. BOCK, M.D., of Jackson Sanatorium, Dansville, N. Y.

A MAJOR of the U. S. Army arrived at our institution on Thursday, the 10th of May, suffering from a complication of troubles symptomatic of grave malnutrition and nervous breakdown. Patient had been working very hard at one of our southern posts and had lost fifty pounds in weight between October and the first of May. On Monday, May 14, the patient was indisposed and stayed in his room. Complained of fever and thermometer

showed a temperature of 101°. On Tuesday the temperature was 102°, and the physician in charge suggested that he thought he would give patient a little quinine to control the fever. Patient said that he couldn't stand quinine at all and said he was made very sick at one time by a large dose of it. Physician said he would only give him a little and ordered five 1-grain pills, one to be taken every hour. In three hours there was very marked

roaring in the ears and in six hours the patient could not hear loud conversation at one foot from the ear. Patient also suffered from intense headache and grippy bone pains. On Wednesday the temperature was  $101^{\circ}$  and the headache and bone pains were more intense. Patient was very weak and had a very small wiry pulse. I was called in to see case at this time. By suitable medication the heart was strengthened and the pain made bearable. Thursday afternoon at about three o'clock the patient had a good old-fashioned attack of chills and fever, the whole paroxysm lasting about five hours. Headache, roaring in the ears, and the bone pains were much increased. Friday morning a spot about the size of a ten-cent piece, and very red and swollen, was noticed at the tip of the nose. This gradually spread peripherally, forming a triangular space which covered the nose and upper lip, the lip being swollen to about half an inch in thickness. Saturday afternoon there was the slightest intimation of a chill at the same time as the one on Thursday, but only lasting about ten minutes. By this time the erythema had spread to and beyond the eyes, which were now swollen so much that they could with difficulty be opened by me, but when I did open the lids the patient could see perfectly. The redness seemed very much like erysipelas in character, having a sharply defined raised edge, and the skin beyond being quite normal. There was intense burning pain over all the affected area, which we alleviated by constant applications of ice water. Patient began to show signs of collapse. Mind prone to wander, but could be recalled by attendant's voice. At times muttering delirium. Sunday the swelling included the scalp and neck and was gradually spreading to the ears; it had changed from bright red to dark purple, and the swelling had increased four-fold. Mouth was swollen so much that only a small teaspoon could be used to give nourishment. Monday the roaring in ears was not so bad, but hearing was not improved. Slight evidence of exfoliation beginning at the tip of nose.

Ears swollen very much and very painful. Mind still unsettled; a good deal of muttering. Tuesday the exfoliation was progressing rapidly and swelling did not seem to be spreading beyond the limits of the neck. Mind was much better. Pain was now localized to the back of head and to spine, but was intense. Wednesday the patient seems to be convalescing rapidly and well. Sunday, the tenth day after swelling began, it had entirely subsided and exfoliation was nearly complete. Patient's mind clear. His appetite is good and he sleeps well. Patient was unable to walk because of weakness in the back, or to stand alone because of persistent vertigo. Eyes for the first time show effect of poison and are red and painful; acuteness very much reduced. Tuesday, the fourteenth day after quinine was given, the patient was rapidly regaining strength. Scales show a loss of twenty pounds in the two weeks. Pain had entirely ceased.

Four weeks after the last above observation I find that the hearing of patient is permanently reduced about one half. Sight is good, but eyes are not able to stand the work they could before sickness. Patient has given me the following account of his first experience with quinine. When he was twenty-one years old he had malaria and was given fifteen grains of quinine the first day, twenty grains the next day and fifteen grains the third day. Seven days after this his body became covered with large blisters and the same erysipelas-like eruption as in the present instance. He was confined to bed for fifty-eight days, and for thirty-seven of these he was unable to open his eyes and could only be fed with a very small teaspoon.

I believe in the present case that on the day the patient had his first chill if I had taken his statement of his inability to take quinine with a grain of salt, as we often do, and unknown to him still administered the usual curative dose, that the man could not possibly have lived. Certain it is that five grains nearly killed him, and they must have had a destructive effect on the plasmodium also, for he has had no malarial symptoms since.

# Clinical Observations Regarding Ichthalbin in Intestinal Diseases

By DR. ROLLY

First Assistant at the Heidelberg Polyclinic

ALTHOUGH a number of reports have been published regarding ichthalbin as well as ichthyol,<sup>1</sup> these preparations have nevertheless not secured for themselves a fixed position in the treatment of intestinal diseases, because, most probably, the investigations reported were carried out on insufficient material.

Homburger,<sup>2</sup> one of the more recent authors, who tested ichthalbin at Dr. Neumann's polyclinic for children's diseases, at Berlin, observed, besides an improvement in the general condition, a beneficial influence not only on simple, but on tuberculous, chronic intestinal catarrhs. A year before the publication of Homburger's work tests were made at our clinic for intestinal diseases with ichthalbin, which appeared to favor this remedy greatly. I decided, therefore, to determine the action of this preparation on the most comprehensive and impartial material it was possible to employ. Later on investigations regarding metabolism and the determinations of the ethyl sulphates were carried out,<sup>3</sup> which are intended to complete and explain the clinical results obtained.

In order to obtain definite knowledge as to the action of a remedy in intestinal catarrhs, naturally only such cases may be treated in which the influence of other curative factors, such as diet, is excluded. In the cases cited below, therefore, I proceeded under the well known precautions, that is to say, I either continued the diet exactly as had been followed before, and only changed it after several days, when the action of the ichthalbin had already been noted, to one more suitable; or, I ordered the proper diet first, and some time later, when this had

been found to be without influence, added ichthalbin.

Of the reports on subacute and chronic enteritis which were made in the local children's clinic and polyclinic, I give the following 28, which are perfectly impartial in judgment. The actual number of patients was far greater; but as many ambulant cases withdrew from further treatment and accurate observation, many examples of excellent results obtained were lost for publication.

## SIMPLE CHRONIC ENTERITIS (EIGHT CASES)

1.—F. D., age 5½ years. Diagnosis, chronic enteritis, anemia and pseudoascites. Constant diarrhea for last 3½ years; oat gruel, acorn cacao, tannin preparations, etc., were only of transient value. Abnormal increase in size of abdomen during 1½ years; great emaciation, etc.

As the condition was not improved during a period of twenty-two days, during which time, in spite of tannalbin, etc., the dejections remained fluid, fetid, and frequent (three to five times daily), 0.5 Gm. (8 grn.) of ichthalbin thrice daily was given on the twenty-third day, the diet remaining the same, with the exception of a slight increase in the quantity of meat; the result was a well-digested passage of good consistency the next day. On suspending the ichthalbin, the diarrhea again ensued on the four days following, but disappeared on administering doses of 1.5 Gm. (23 grn.) ichthalbin daily for three days. From this time on the dejections were well formed, and an increase of 800 Gm. (26 oz.) in body weight took place in two weeks. Nine months later the patient presented a very good appearance, having increased very much in weight, etc. The parents still give small doses of ichthalbin from time to time.

2.—M. K., aged 9 weeks. Anamnesis: Six weeks ago had colic for an entire day, followed by diarrhea and vomiting. Latter then stopped, but during the past week vomiting and diarrhea again persist, with emaciation. Nutrition: Rice gruel and milk; during the past week only rice gruel. Diagnosis: Simple chronic enteritis (catarrh of both large and small intestines). Treatment: Retention of the rice gruel, although during the first two days six mucous, very fetid de-

<sup>1</sup>Among others see Hoffmann and Lange. *Therap. Monatsh.*, 1899, No. 5; M. Lange, *Allg. med. Centralztg.*, 1897, No. 3; Nussbaum, *Therap. Monatsh.*, Jan., 1888.

<sup>2</sup>*Therap. Monatsh.*, July, 1899.

<sup>3</sup>MERCK'S ARCHIVES, II, p. 174-178.



jections occurred on each day. On administering 1.5 Gm. (23 grn.) of ichthalbin daily, however, only from two to three pasty, at first fetid, dejections occurred; milk was again borne, and the body weight increased 200 Gm. (7 oz.) in two weeks.

3.—L. Z., age 8 years. Diagnosis: Chronic enteritis and catarrh of both small and large intestines. For years, off and on, diarrhea, constipation, and anorexia. Accepted for treatment February 27, 1899. Ointment-like, pale dejections, consisting largely of mucus and a little watery fluid. Therapy: Diet as in February, and oat gruel. March 6, daily 2 Gm. (30 grn.) ichthalbin, because no improvement in dejections since coming under treatment. March 8, consistent stools; eats everything. March 15, permanently good, consistent dejections; appetite better. Discharged from treatment, but still takes 0.5 Gm. (8 grn.) ichthalbin twice daily. The intestinal catarrh was cured, as a later consultation showed.

4.—R. B., age 9 months. For a long time diarrhea, emaciation, and anemia. Therapy: Three Gm. (45 grn.) ichthalbin daily; after four days the stools were good and of better consistency.

5.—F. B. Age one year. Dejections bad almost from birth, and of late from ten to twelve daily. The diet was retained, and 4 Gm. (1 dr.) of ichthalbin given daily in addition. In three days the stools were neither so frequent nor thin, but as they were still somewhat mucous in character and fetid, a more suitable diet was ordered, and consistent passages were obtained in a week.

6.—S., 2½ years old. Diagnosis: Chronic enteritis. Was immediately given 3 Gm. (45 grn.) of ichthalbin daily. In a week, decided improvement of the intestinal catarrh; the dejections are of better consistency, look better, etc.

7.—J., age 5 years. Diagnosis: Chronic enteritis, anorexia. Therapy: 3 Gm. (45 grn.) ichthalbin daily and racahout. After five days the stools were good and the appetite much improved.

8.—W., 4 months old. Diagnosis: Chronic enteritis. Almost constant diarrhea; for the last three days eight to twelve movements daily. Therapy: 3 Gm. (45 grn.) ichthalbin daily and gruel only. After three days' treatment the stools were solid.

#### CHRONIC ENTERITIS WITH PERITONITIS (THREE CASES)

In the eight cases of simple chronic enteritis a rapid improvement of the catarrh will have been observed to follow the use of ichthalbin; the following three cases of chronic enteritis, complicated with peritoneal exudations and suspected tubercular peritonitis, will be shown to have been equally improved:

1.—H. H., 4 years old. Diagnosis: Chronic enteritis with severe catarrh of the large intestine and with peritoneal exudation; tubercular peritonitis. A sister of the patient had died of tuberculosis, and so had the grandparents. Patient suffered for one and one-half years with alternate diarrhea and constipation. Of late great increase in size of abdomen, with extreme emaciation of the entire body. Much mucus in the dejections; complete anorexia. When the patient is in a recumbent position, the exudation extends a finger's breadth above the navel. Only a transitory, slight improvement with resorcin, diet, and inunctions of green soap. As the condition again became worse, 3 Gm. (45 grn.) of ichthalbin were given daily after three weeks, the diet being retained. In a week the stools were regular, occurring two or three times daily, and became pasty; the appetite was remarkably increased, so that the patient constantly desired food, and the peritoneal exudation had decreased. At the time of writing the patient defecates but once or twice daily, and the body weight has been increased by 3 pounds during the last five weeks. The patient still takes three pinches of ichthalbin daily. The estimations of ethylsulphuric acid, which were made shortly after beginning the treatment, indicated a decided decrease in intestinal fermentation under the ichthalbin administration. (See MERCK'S ARCHIVES, 11, p. 177. Hartmann.)

2.—M. M., 5½ years old. Diagnosis: Chronic enteritis, with peritoneal exudation (tubercular peritonitis?). Disease began three and a half years ago with emaciation, colic, anorexia, and thin and slimy stools. The condition was at times improved; the abdomen was enlarged. The child had been treated by other physicians with creosote, salt baths, green soap inunctions, abdominal bandages, diet, etc., but without success. On being received at the local children's clinic, the patient presented a very emaciated, anemic appearance and, in a recumbent position, exhibited evidences of a peritoneal exudation extending above the navel. Treatment: Diet as before, with plenty of gruel and broth; application of green soap to the abdomen. The dejections contain much mucus, are sometimes thick, then again very thin; no bacilli. As the stools did not improve during the first three weeks, and as the appetite grew rather worse, while laparotomy was objected to by the parents, doses of 0.5 Gm. (8 grn.) ichthalbin were given twice daily. The day following the beginning of the ichthalbin medication, the dejections exhibited more consistency, and three days later were well formed. From this time on the stools were regular, containing at first a little mucus, which later on disappeared. Increase of weight during the first two weeks of ichthalbin treatment, 550 Gm. (18 oz.).

3.—G. K., 11 years old. Diagnosis: Chronic enteritis; palpable mesenteric glands; sus-

pected tuberculosis. Diarrhea for several years; distended abdomen. Everything was tried to master the diarrhea, but unsuccessfully, the slimy, ointment-like stools persisting. From Dec. 3, 1898, doses of 0.5 Gm. (8 grn.) ichthalbin were given thrice daily, the previous diet remaining the same. After four days the stools were of better consistency, although still containing some mucus. From December 7 to 14, 1898, the increase in body weight was 800 Gm. (26 oz.) Later on the stools again became somewhat ointment-like in character; nevertheless the patient gained, up to January 8, 1900, 3000 Gm. (about 6½ lb.) in weight. It was regretted that this case was withdrawn from further observation.

Under the administration of ichthalbin, an improvement was rapidly effected in all these grave cases in the appearance and general condition of the patients. The stools were regular, rendered more consistent, and the children gained in weight. That the lessening in the quantity of exudate, which was observed in two of these cases, was due to the ichthalbin medication may be questioned.

#### CHRONIC ENTERITIS WITH TUBERCULOSIS (FIVE CASES)

Satisfactory results had already been observed in Neumann's clinic to follow the administration of ichthalbin in chronic enteritis complicated with tuberculosis. Quite recently, also, I read an article in English by Kilburn Jones, who also had observed several cases of severe chronic intestinal catarrh with tuberculosis which were beneficially influenced by ichthalbin. I here give five new cases, regarding which I have minute details.

1.—S. L., 2 years old. Diagnosis: Disseminated pulmonary tuberculosis; pleurisy, chronic enteritis. September 13, ordered 3 Gm. (45 grn.) ichthalbin. After diarrhea for many weeks previous to treatment, the ichthalbin in quantities of 3 Gm. daily for three weeks afforded more consistent stools until the death of the patient in February, 1899, from miliary tuberculosis.

2.—Z. P., age 1 year. Pulmonary tuberculosis. Ichthalbin in doses of 1 Gm. (15 grn.) daily improved the character of the stools and also the general condition. Patient, in fact, gained 250 Gm. (8 oz.) in weight during the first two weeks.

3.—G. L., 2½ years old. Tuberculosis of bronchial glands. On taking doses of 1 Gm. (15 gr.) daily for one week patient gained 300 Gm. (10 oz.) in weight, after having lost 700 Gm. (22 oz.) in weight the previous week. The dejections lost their extremely fetid character, and acquired more consistency. Died seven months later.

4.—An adult woman, mother of patient No. 2, had at first been treated with opium and tannin preparations for sanguineous diarrhea without success, but with doses of opium as before, with a knife-pointful of ichthalbin thrice daily for three months good results were obtained.

5.—B. T., age 2 years. Diagnosis: Chronic enteritis, with tuberculosis of the pulmonary glands. Three Gm. (45 grn.) of ichthalbin daily for two days produced consistent dejections. Patient withdrew from observation after ten days' treatment. Entered the clinic six months later in a very forlorn condition, with the statement that ichthalbin had been taken for a long period. Patient died two weeks later. A post-mortem investigation showed general miliary tuberculosis, but no tuberculosis through the entire intestinal tract, nor tubercular peritonitis.

This case, from a pathological-anatomical point of view, was declared (Privy Counselor Prof. Arnold) unique, considering the age of the patient, because of the freedom of the intestinal tract from the disseminated tuberculosis that had invaded all the other organs. For the seven months previous to death, the patient had taken 3 Gm. (45 grn.) of ichthalbin daily, with but slight interruptions. Whether the permanent, effective disinfection of the intestinal tract is ascribable to the ichthalbin, which would deprive the tubercle bacilli of their virulence, is a question which of course cannot be answered; nevertheless the remarkable statement should not be ignored, because of its application in cases of an analogous character.

As may be seen, these five cases of enteritis, complicated with tuberculosis of other organs, were beneficially influenced temporarily by ichthalbin, and some of the patients gained in weight.

#### SUBACUTE GASTRIC AND INTESTINAL CATARRH (TWELVE CASES)

From the twelve cases cited above it may be seen that ichthalbin was given in chronic enteritis with good results even in those cases where various other remedies had been ineffective. I was most surprised at the excellent action of ichthalbin in chronic peritonitis and in chronic enteritis in tuberculous subjects. The results of the investigations regarding metabolism, however, and particularly of the decrease in the ethyl-sulphates, hence the diminution of intestinal fermentation, appeared to me most likely to

explain the excellent results observed on these patients.

Among these good results, some non-successes were naturally encountered. It appeared to me to be of interest, further, to determine whether ichthalbin had any influence on subacute gastric or intestinal catarrh. Here non-successes were frequent. Among the rest, however, I have the histories of twelve cases of subacute intestinal catarrh in which ichthalbin exerted a beneficial action on the course of the catarrh. It would carry me too far to cite all these cases here, and I only note here that the appetite and general condition of these patients were improved by ichthalbin, the dejections became fewer and solidier, so that the patients, after taking 0.5 to 1 Gm. (8 to 15 grn.) of ichthalbin thrice daily for from three to eight days, were discharged cured.

I have tried the remedy in but few cases of acute enteritis. I avoid, therefore, drawing any conclusions from the observations made in these, as I was generally forced to immediately change the diet, so that the action of ichthalbin could not be determined.

#### ANEMIA AND ANOREXIA

The results of the metabolism investigations, as well as the many observations made regarding the improvement in appetite and increase in body weight naturally led to the employment of the remedy in anemic and appetiteless subjects. The number of impartial observations are so far too few, however, to enable me to draw positive conclusions as to the eligibility of ichthalbin as a tonic. The observations are to be continued at the local clinic, and I shall make them the subject of a future publication.

#### CONCLUSIONS

1.—Ichthalbin was given in doses up to 8 Gm. (2 dr.) daily for a long time without harmful results, and was always eagerly taken. It caused no constipation, even in the larger doses, nor any symptoms of irritation of the intestines or kidneys.

2.—In our metabolism tests it facilitated the albumin intake, while at the same time it diminished the nitrogen elimination via the urine, and heightened the utilization of the ingested nutriment.

3.—Doses of 0.3 to 0.5 Gm. (5 to 8 grn.) of ichthalbin sufficed to raise the appetite and increase the body weight; hence the remedy appears to be serviceable as a tonic.

4.—In our four series of tests daily doses of 1.5 to 3 Gm. (23 to 45 grn.) greatly reduced the quantity of ethylsulphates, and lessened intestinal fermentation, even though the dejections only gradually lost their fetid character.

5.—Under otherwise constant conditions (diet, etc.) daily doses of 1.5 to 3 Gm. of ichthalbin had a satisfactory, at times very excellent, influence on simple chronic enteritis, as well as in cases complicated with peritonitis or tuberculosis.

6.—Subacute gastric and intestinal catarrhs were to some extent satisfactorily influenced, but in acute cases an uninfluenced action could not be observed.

*Dosage:* In the chronic intestinal catarrhs in children under 1 year of age doses of 0.3 to 0.5 Gm. (5 to 8 grn.) were given thrice daily; to children from 1 to 5 years of age, 0.5 to 1 Gm. (8 to 15 grn.) three times daily; over 5 years of age, 1 Gm. thrice daily. As a tonic, doses of 0.3 to 0.5 Gm. (5 to 8 grn.) were given to children and adults three times daily. The ichthalbin may also be ordered in bulk, with directions to take a knife-pointful thrice daily.

**Hysterical manifestations** of an active type may be relieved in from twenty-four to forty-eight hours, according to Dr. F. Walter,<sup>1</sup> by the administration of a massive culture of the colon bacillus, the original colony of which was taken from a non-infectious source, such as the dejections of the hog or the common fowl. A well-matured culture on agar in a Petri dish is said to be sufficient for from three to six doses. It is scraped from the surface of the agar, mixed with some indifferent substance and given in capsules, three times daily. The effect is said to be so uniform that the remedy should be ranked as a specific. The explanation offered of the cure is that hysteria is caused by a toxic intestinal bacillus, which is simply crowded out by the horde of non-toxic immigrants.

<sup>1</sup>N. Y. Med. Jour., LXXII, p. 113.



## Fireman's Cramp

By WILLIS CUMMINGS, M.D., Brooklyn, N. Y.

THE subject of "Fireman's Cramp" is one rarely heard of in medical journals, and but lightly touched upon in text books. When we consider the conditions surrounding a fireman's or coal passer's work, we must think that anything that may serve to mitigate his condition will surely be appreciated.

As surgeon on an ocean steamer, my duties brought me in close contact with these laborers of the ship. Interesting psychologically at all times, they were more so when disabled by accident or disease. My attention was strongly drawn, during my earlier trips, to the condition known as "colic," or "cramp." The acute pain, the extreme prostration, the blood-shot eye, pressing thirst, labored breathing, irregular or weak heart action, and agonized expression all denote a startling condition. My experience has been gained solely on steamers running to the tropics, the time of a round voyage being from three to four weeks.

The men in question, with but rare exceptions, are drinkers, and come aboard to begin a trip showing to a greater or less degree the effects of the misuse of alcohol. They immediately put themselves in a position to feel the worst effects of their imprudence by assuming their duties in the fire room, where, in winter, they are fanned by the icy air coming through the ventilators, and in summer, especially in calms or following winds, they are in the vestibule of Satan's domain. Only one who has stood before the furnaces of a large sea-going steamer can realize the fatiguing situation of these men, who, during a period of four hours, shovel in tons of coal and remove and cool piles of ashes. They, perhaps, have been on "short rations" for a day or two previous to sailing, substituting for cheap food cheaper whisky. For several days after coming aboard their stomachs revolt at food, and only by constant urging on the part of the doctor, if there be one on board, will they perhaps take a

bowl of hot soup or other nourishing aliment. There apparently is a studied indifference or actual ignorance on the part of the engineers in the matter, as they fail to see that what the men want is proper food rather than alcohol. They are not allowed to stop work until they drop, and the justice of this is that they have no business to jeopardize the interests of their employers by anything that will render them unable to perform their duties. Human nature is the same in the forecabin as in the officers' quarters. Personal appetites dominate impersonal interests at times in both places.

Finding the stock remedy to be "fireman's cramp mixture," a concoction resembling "Sun cholera mixture," inadequate to allay the condition, and leading, if used freely, to gastric disturbances and constipation, I sought for a substitute, and the one here described is the one decided upon as being the best. Under this method I found no case of colic to occur even in the hottest weather of the Gulf of Mexico, and it is hot there often. The men, without exception, did better work, and were less exhausted when coming off watch; their appetites were good, their spirits were cheerful, and *there was less desire for alcoholic stimulants* than after the anodyne methods.

My starting proposition was, that on account of the primary debility induced, directly or indirectly, by excesses, aided by the loss of fluids and solids in the profuse sweating brought about by heat and muscular action, there was a lowering of the vital force which, acting on nerve centers, produced a temporary or reflex paralysis of part of the abdominal contents, and also a spasmodic condition of the muscles, which, extending to the limbs, produced the characteristic contractions and painful seizures. Acting on this theory, I set about estimating the amount of moisture eliminated, and so far as possible, in a crude way, the amount of solids thrown off by skin

and kidneys. Taking the whole number of hours per day; per man on watch, as twelve, it was estimated that they drank a certain quantity of water during a week's work. Estimating the loss of water and solids during the same time, the two were balanced and the following formula and conclusions were arrived at:

To one gallon of water were added  
 Calcium Phosphate.....256 grn.  
 Sodium Phosphate.....256 grn.  
 Potassium Phosphate.....256 grn.

with an excess of ortho-phosphoric acid.

For the use of nine men in four hours four ounces of this solution were put into nine gallons of water, containing oatmeal and ice if available, each man drinking approximately a gallon of water during the watch. The quantity of the phosphate solution is about three and one-half drams taken while on duty. The effect was immediate and "phosphose," as they named it, was in demand daily. After some months I gave up the experiment, as it was conducted at my personal expense. I have used it occasionally since in conditions approaching "colic" with excellent results.

It was observed during the period of its continuous use that at times the men would not use "phosphose" for several watches. When asked why, they said they did not feel the need of so much of it, as the previous quantity had seemed to brace them up permanently. While the results were all desirable and satisfactory, they remain valueless unless applied to the amelioration of the condition of these "toilers in hell," as they have been aptly called by one who has worked among them.

It is a lamentable fact to the traveling public, as well as the hundreds of officers, engineers, sailors, firemen, stewards, and waiters, that but two American steamship lines out of New York carry regularly commissioned medical officers. No one who has sailed to tropical seas on a doctorless ship will fail to say that they have seen the necessity for medical attendance when no efficient help was near. While the law protects the steamship owners, their crews sometimes undergo great hardships in consequence of inadequate attention when sick

or disabled. It has occurred to me that if the formula I have devised could be put into convenient shape, and its merits presented in a suitable way, they might adopt it. I am sure that the men who need it would take to the preparation kindly if once they could get started in its use. There are thousands of firemen and coal passers sailing to every sea, and while many are not affected with "colic," many more are, and, like sunstroke, it sometimes attacks those who least expect it.

The running time of a ship depends very largely on the capability and endurance of the firemen. If the possibility of collapse is eliminated wholly or in part by a simple preparation, used as a pleasant beverage, the men themselves, their employers, and the business public will receive direct benefit.

In conclusion, I may say that by the use of this mixture I have relieved present conditions, avoided possible troubles, dispensed with "colic" and "cramp" mixtures and alcohol, and have stimulated a natural desire for food, and in consequence got more and better work from a class of men whose labors and pains are but little understood by those who know only the saloon deck life on the sea.

156 St. James place.

## The Antiseptic Treatment of Typhoid Fever

In a paper read before the Medical Association of Georgia, Dr. T. Virgil Hubbard<sup>1</sup> vigorously defends the eliminative and antiseptic treatment of typhoid fever. The basis of his argument is stated in the three following propositions, which will, he believes, command general acceptance: First, that the cause of typhoid fever does not originate *de novo* in the human organism, consequently it must be introduced from without. Second, that this causative agent introduced from without and the poisonous products it generates within come under the head of a constitutional poison and may be found in almost every tissue of the body. Third, that at the present time we do not possess a

<sup>1</sup>Med. News, LXXVII, p. 9.

direct chemical antidote whereby this poison may be changed into a harmless compound. From these postulates, it is argued that, as the neutralization of the poison is impracticable, the most rational procedure is to aid in every possible way its elimination by stimulating to the fullest functional capacity the natural eliminants, namely, the liver, kidneys, bowels, and skin. In view of this clear indication, the expectant policy is denounced as little short of criminal, and not appreciably superior to Christian science. The doctor asserts that sins of omission are quite as reprehensible as those of commission, and accuses the *laissez faire* practitioner of forgetting the good old adage in which 16 to 1 is said to express the ratio of the value of prevention to that of cure. In his opinion, armed expectancy is woefully inadequate when intestinal perforation or severe hemorrhage occurs. That the probability of these accidents is minimized by allowing the toxic bacilli to riot undisturbed in the bowels, he will not for one moment concede.

That the intestinal canal can be sterilized by the use of any known drug or combination of drugs, the author does not pretend. He believes, however, that it is foolish to refuse half a loaf because the whole is not to be had. The supposed cause of the disease is undoubtedly present in the bowel during an attack, and solutions of antiseptics must exert a retarding influence on its development, even when too dilute to act as germicides. In such conditions as empyema and gonorrhea, the utility of antiseptics is not denied because of their failure to sterilize. However, antisepsis is but a secondary feature of the treatment under consideration, the main object being elimination. Against the theoretical dangers of the measures advocated, the author sets up the practical fact of mortality percentage which is, he claims, a far more reliable guide in the labyrinth of therapeutics than any amount of logical deduction from premises of questionable validity. That his own record of twenty cases without a death is insufficient, from a statistical standpoint, to demonstrate anything more

than unusually good luck, he frankly admits. Nevertheless, he feels justified in attaching significance to the fact that in the wider field covered by the experience of others, as well as himself, the average mortality under this plan of treatment has been only 2 per cent., a figure which proves pretty conclusively that the theoretical dangers are theoretical only.

In the author's judgment, too much attention has been bestowed upon the intestinal ulcers, which he considers as of little more importance than any other ulcers. In their anxiety to protect these local lesions from irritation, physicians have, he asserts, too largely ignored the fact that the patient was suffering from a severe toxemia, the certain effects of which were more to be dreaded than the possibility of perforation or hemorrhage. It is not, in his opinion, good practice to safeguard Peyer's patches by starving the patient.

The actual course of treatment recommended for typhoid fever may, perhaps, best be given in the author's own words, as follows: "When called to a case of typhoid fever, I usually commence by giving the patient a capsule containing calomel,  $\frac{1}{2}$  grn.; guaiacol carbonate, 2 grn.; podophyllin  $\frac{1}{20}$  to  $\frac{1}{40}$  grn., every two hours for twenty-four to forty-eight hours, depending on the condition of the bowels. I continue this until I have secured four or five intestinal evacuations for two successive days, and then I stop administering the calomel and add  $\frac{1}{2}$  grn. of menthol to the guaiacol and podophyllin. If, after discontinuing the calomel, there is any tendency for the bowels to become inactive, as there frequently is, I administer a small dose of salts or Hunyadi water in the morning. I always endeavor to secure at least two or more evacuations daily, depending on the temperature and the condition of the bowels. If, after four or five days of treatment, the temperature remains high, or rises after having remained stationary, I again resort to the calomel as before for twenty-four hours, or less, as necessary, and it invariably reduces the temperature and results in a general improvement in the patient's condition. I continue the ad-



ministration of guaiacol and menthol throughout the course of the disease." In addition to the above, normal salt solution is frequently given by rectum with good results.

The special value of this treatment is believed by the author to depend on the small, frequently repeated doses of calomel. The complete explanation of its action he does not attempt, but thinks it probable that part of its efficiency is due to the stimulation of the production of white blood cells, which act as defenders of the organism against invading bacilli.

### **Therapeutic Value of Diphtheria Antitoxin**

IN order to settle the much debated question of the therapeutic virtue of diphtheria antitoxin, and to convince the skeptics of the importance of its employment in every case of diphtheria, Dr. F. Siegert,<sup>1</sup> of Strassburg, addressed inquiries to 79 hospitals in Germany, Austria, Hungary, and Switzerland, and received from 70 more or less full replies. Inaccuracies as to diagnosis and severity were eliminated as far as possible by soliciting information with regard to such cases only as had received operative treatment for laryngeal obstruction. As the serum therapy was first introduced in 1894, the period selected for the investigation comprised the nine years, 1890-98. In all, nearly 37,000 cases were reported, of which 17,673 belonged to the four years preceding the introduction of antitoxin, 13,524 to the four years subsequent to its introduction, and 5,225 to the intermediate year. As cumulative evidence only, statistics are quoted of about 42,000 cases which did not require operation.

Of the latter cases, the mortality percentages for the four years of the first period were respectively, 40.5, 39.0, 41.8, and 44.1, or an average of 41.4. In the intermediate year there was a slight drop to 37.4, and for the four succeeding years, the figures were 18.1, 17.4, 15.0, and 15.4, an average of 16.5. In other words, the average death-rate before the use of anti-

toxin was almost exactly two and one-half times as great as since. As it is claimed by opponents of the serum therapy that these statistics merely demonstrate that the disease has been of a milder type during recent years, the author does not lay much stress on them, but proceeds to analyze the operative cases, as to the severity of which there can be no doubt. With regard to these, there is fairly wide variation in the results obtained at different hospitals, the mortality for the pre-serum period ranging from 81 to 34 per cent., with an average of 60.38. During the intermediate year, the average was 53.79, and for the later period, 36.32. With a single exception, and that a small one, every hospital showed a reduction of the death-rate in these severe cases after the introduction of antitoxin. This reduction varied from a minimum of 5 to a maximum of 52 per cent. From the two-series of comparisons above summarized, the author draws the striking conclusion that of 40 ordinary cases of diphtheria which would die under other modes of treatment, 25 are surely saved by antitoxin, and that of the severest operative cases, the same remedy rescues 24 out of every 60 that would otherwise perish. In view of these facts, he argues that it is impossible to hold guiltless the physician who fails to employ this powerful weapon in combating so dangerous a disease. In illustrating his facts, the author has availed himself largely of the graphic method which brings prominently into view the almost uniformly great and sudden drop in mortality percentage about the year 1894.

The question as to the effect of antitoxin on the frequency with which operative interference is required is answered in an equally decisive manner. Out of about 40,000 cases treated in various hospitals during the nine years under consideration, the percentages subjected to operation were, for the four years of the pre-serum period, respectively, 48, 48.1, 46.7, and 44.4, or an average of 46.8, from which the deviations for individual years are slight. During the intermediate year, the percentage was 42.9; and, for the succeeding four

<sup>1</sup>*Jahr. für. Kind.*, LII, p. 56.

years, the figures were 30.1, 28.5, 25.1, and 26.9, or an average of 27.6, also with comparatively slight fluctuation. From these statistics, the conclusion follows that out of 47 cases requiring operative interference under previous plans of treatment, at least 19 are relieved of that necessity by the use of antitoxin. Further, as the previous investigation has shown, of the 28 subjected to operation, only 10 will die under serum treatment as against 17 under previous methods. In view of the fact that many of the operative cases are sent to the hospitals by physicians who have not employed antitoxin, the author believes that the figures cited tell only a portion of the truth, and that the results, both as to frequency of operation and percentage of mortality, would be far more striking if every case of diphtheria promptly received, once or oftener, an injection of at least 1,000, or better, 1,500 units.

Incidentally, the material gathered has enabled the author to institute an interesting comparison of the relative merits of tracheotomy and intubation for the relief of laryngeal obstruction. Primarily, he strenuously protests against the oft-repeated assertion that the former is a dangerous operation. As for the latter, although he admits that every physician ought to be competent to perform it, he insists that such has not been the case with 95 per cent. of them and that improvement in this respect will probably be slow. During the pre-serum period, the average mortality per cent. of operative cases in the hospitals that seldom or never practice intubation was 58.6, or 1.7 below the average for all operative cases, as already given. Similarly, in the intermediate year, the percentage in favor of tracheotomy was 0.7, and in the later period was 1.5. The percentages for hospitals in which either operation is performed, according to the case, are as follows: Pre-serum period, 67.4, or 7.1 in excess of the average for all operative cases; intermediate year, 56.3, or 1.9 in excess; later period, 35.3, or 1.6 below. As only very few hospitals relied entirely on primary intubation, the number of cases reported was too small

for trustworthy results. However, the percentages are 64.4 for the pre-serum period, 53.3 for the intermediate year, and 40.5 for the later period.

From the foregoing analysis of his material, the author concludes that the introduction of intubation has not reduced the mortality from laryngeal diphtheria, as the results of tracheotomy are superior. As a routine operation, he believes that it should be definitely abandoned, although in selected lighter cases, or as a preparation for tracheotomy, there is still an appropriate field for its employment.

### Quinine and Euquinine

QUININE was the subject of a paper read by F. S. Clinton,<sup>1</sup> M.D., Ph.G., at the fifth annual convention of the Indian Territory Pharmacal Association, in which the drug is considered somewhat as follows:

Origin: From the various cinchonas.

Physical characteristics: Amorphous, or exceedingly fine crystals of snowy whiteness, insoluble in the saliva, sparingly soluble in water, and freely soluble in acidulated liquids.

A common test is fluorescence.

Preparations of the drug number about twenty-five, official and unofficial, of which the sulphate, bisulphate, hydrochlorate, hydrobromate, valerianate, arsenite, and euquinine are most used medicinally. All the salts are more soluble than the alkaloid, and therefore more generally employed.

Many attempts have been made to obviate the bitter taste of quinine and to diminish its untoward effects. The most satisfactory solution of this great problem is, in his opinion, the product known as euquinine (superior quinine), which is defined chemically as the carbonic ether of quinine. It is tasteless, and may be given in doses equal to or greater than quinine sulphate, followed by a draught of milk or cocoa. The stomachic disturbance which follows the administration of quinine is absent, and in consequence euquinine is better borne in the different

<sup>1</sup>Proceedings I. T. Phar. Assoc., 1899.

neuralgic, rheumatic, rheumatoid and febrile conditions in which quinine may be indicated.

Its physiological properties are: Anti-periodic, antizymotic, antiseptic, antimiasmatic, antipyretic, antiphlogistic, antihypnotic (small doses), anodyne, emmenagogue (?), ecbolic (?), germicide, hypnotic (large doses), and oxytoxic.

Physiological action: Small doses ( $\frac{1}{2}$  to 2 grn.) are tonic and stimulant, increasing the appetite, quickening the heart's action, and raising the arterial tension. Quinine salts are quickly diffused and slowly eliminated. Large doses (5 to 30 grn.) diminish heartbeat, lower arterial tension and lessen temperature in fever.

Synergists: All reconstructive agents.

Untoward effects: Large doses paralyze the ozonizing functions of the red blood corpuscles; inhibit the ameboid movement of, and probably destroy the white blood corpuscles; cause tinnitus aurium, amaurosis, deafness, cephalalgia, mydriasis, diplopia, incoördination, occasionally tetanus (from hypodermic use), coma, and even death.

Contraindications are marked idiosyncrasy, cystitis, meningitis, gastritis, otitis media, encephalitis, epilepsy, and nephritis.

Dosage: Quinine sulphate and bisulphate,  $\frac{1}{2}$  to 30, or even 40, grn. in certain cases; hydrochlorate and hydrobromate,  $\frac{1}{2}$  to 20 grn.; valerianate and arsenite,  $\frac{1}{4}$  to 2 grn.

Administration: By the mouth, by solution in acidulated liquid or suspended in syrup, in gelatine capsules, in gelatine or sugar-coated pills or tablets, in cachets, in chocolate discs, or alone, Per rectum, in solution or suppositories. By injection, and hypodermically.

Antagonists: Morphine sulphate on the brain and atropine sulphate on the heart and nerves.

Incompatibles: Alkalies, alkaline earths, and carbonates, which precipitate it in solution.

Antidotes: Morphine sulphate, atropine sulphate, and strychnine sulphate hypodermically.

Therapeutics: From its physiological

properties and actions it certainly is, if used intelligently, a medicine of wonderfully wide application. It is one of the greatest therapeutic discoveries ever made, and is the nearest specific known for malarial fevers.

With the emunctories kept open, it may be used with advantage in almost every form of acute or chronic malarial poisoning, and is also a good prophylactic, for it destroys all paludal miasms. It is useful in neuralgias of malarial origin, in atonic and fermentative dyspepsia, and in the gastric catarrh of drunkards. It is beneficial in erysipelas, puerperal infection, septicemia, variola, rubeola, scarlatina and in metrorrhagia not of organic origin and possessing marked periodicity. In inflammations, such as tonsillitis and laryngitis, quinine sulphate may with benefit be given in the early stages, combined with opium, and an acute coryza may be aborted by giving full doses in the beginning of the attack. In combination with acetanilid it is said to be a specific for "pink-eye." The author concludes by saying that the drug is not sufficiently praised and that half of its therapeutic victories have never been told.

## The Therapeutics of Menstrual Disorders

PREPARATORY to a consideration of the therapeutics of menstrual disorders, Dr. H. Macnaughton Jones<sup>1</sup> calls attention to the vast amount of mental confusion due to the too facile use of the terms "functional" and "organic." To tell definitely when simple abnormality of function first becomes associated with organic change is, he reminds us, often beyond our diagnostic ability. Further, the functional disturbance may depend on histological changes in some remote organ. Unless these facts are constantly borne in mind, there is great danger that symptoms only will be treated, to the neglect or even detriment of the real seat of the disease. Again, the slovenly habit of accepting symptoms at their face value, without care-

<sup>1</sup>*Edin. Med. Jour.*, VIII, p. 18.



ful investigation of the underlying causes, is easily acquired and difficult to break.

The foregoing considerations are nowhere more pertinent, we are told, than in the domain of disordered ovulation and its associated external expression, the menstrual flow. Such opposite symptoms as amenorrhea and menorrhagia sometimes alternate in the same person, while dysmenorrhea is frequently associated with each. This combination of clinical conditions is the inevitable result of the necessary co-operation of at least three organs, the ovary, the Fallopian tube, and the uterus, in the process of normal ovulation. The apparently independent occurrence of menstruation or ovulation in certain exceptional circumstances does not militate against the theory of their causal connection in normal conditions. Without entering into a discussion of the exact nature of the connection, the author thus summarizes the phenomena culminating in the monthly flow: "During the period between the follicular rupture and the appearance of menstruation, momentous changes are occurring in the ovarian and uterine vascular connections. An important part is played not only in the rhythmical occurrence of the act of ovulation and its menstrual attendant, but also in its character and quantity, as well as in the nervous phenomena attendant upon it, by the vasomotor supplies of the genitalia through the renal, abdominal and pelvic plexuses. The normal nutritive balance maintained during the interval is disturbed before the onset, and, as a consequence, a perverted metabolism is induced in the internal genitalia. This culminates in the disintegrating process with its associated discharge from the uterine endometrium."

For clinical purposes, therefore, menstruation must be regarded as part of "a complex train of cyclical physiological phenomena, involving various structures in distinct but intimately correlated parts, manifesting themselves in rhythmical regularity and sequence." Disturbances of this normal course of events may be initiated by pathological conditions, either of the organs immediately involved or of

those more remote. Of the former, a fair proportion are congenital defects of structure, position, or development. Others are the result of previous disease of the generative tract. Still others are due to concurrent congestive and inflammatory conditions induced by injury, exposure, or abuse. In the latter class, first place is assigned to variations from the normal quantity and quality of the blood, as manifested by such conditions as anemia, chlorosis, or even simple plethora. Disturbances also arise from purely psychic conditions, such as fright or grief, as well as from organic brain disease, tumor, meningitis, etc. Disease of almost all of the visceral organs will at times affect the menstrual flow. Zymotic fevers seem to have little influence unless of unusually severe type or protracted duration. Finally, climate appears to modify this function directly, apart from its effect on the general health.

Disturbances at the period of the menopause are, in the author's opinion, too frequently lightly regarded as functional, when careful investigation would demonstrate pathological changes of a more or less serious nature. The conditions at this time seem to him peculiarly favorable for the development of disease. Thus, cystic degeneration of the ovary may result from the arrested development of a Graafian follicle and its premature rupture, with extravasation of blood into the ovarian stroma. Or, on account of the non-discharge of the ovum, there is failure of the normal relief of the congestion of the ovary, the result being hypertrophic hyperplasia and, eventually, sclerosis. Similarly, connective tissue changes are initiated in the turgid uterus by cessation of the discharge of its now useless secretory products. Excessive flow, on the contrary, is accompanied by disintegration of the mucous membrane, resulting in chronic corporeal endometritis. All of these troubles are naturally aggravated by any displacements that may exist. It is, therefore, obvious that too much care cannot be exercised to discriminate between simple neuroses of the menopause and those de-

pendent on beginning organic disease of the genital organs.

Second in importance to the menopause only, in this connection, is the advent of puberty. Of great practical value is the fact that ovarian cystomata occur most frequently about this age, at which period, also, the maximum degree of success attends operation for their removal. Cessation of menstruation, after its early and regular establishment, should always excite suspicion of some sexual affection and, if ordinary measures fail to restore the function, careful examination, under anesthesia, should be instituted. Similar exploration of the pelvic organs through the vagina and rectum is indicated in case of delayed menstruation, especially if there are other symptoms of ill health. The discovery in this way of diseased conditions might be of priceless value to the patient, while the demonstration of congenital absence or malformation of the sexual organs would prove to the doctor the utter futility of medicinal treatment: incidentally, the question of pregnancy might be settled. Although the author is not inclined to assign much etiological importance to irregular or suppressed menstruation in the psychoses of early adolescence, yet he believes that correction of the disturbed sexual function usually associated with these conditions is often of material benefit to the patient's mental health.

Before treatment is instituted in any case of menstrual disorder, whether it be absence or suppression of, or painful or profuse menstruation, the first step is to investigate thoroughly all symptoms which might possibly have an extra-genital cause. Outside influences having been excluded, the next point to decide is whether the affection is organic or functional, which can be satisfactorily accomplished only by means of a careful examination of the pelvic organs. This routine practice obviates the confusion of thought which results when mere symptoms, such as amenorrhea, dysmenorrhea, or menorrhagia, are regarded as distinct morbid conditions.

D. Peters,\* of the Luisenhospital, at

ment of menstrual disorders are classified under three heads, hygienic, medicinal and operative. Among the first are suitable gymnastic exercises, including a course of Swedish movements and massage, sometimes combined with the external and internal use of galvanism or faradism, in the treatment of absence or suppression of the catamenia. In the absence of cardiac trouble, cycling, if not overdone, has been found beneficial rather than otherwise. The open air exercises now practised at most schools for girls are considered highly advantageous, provided that they are judiciously proportioned, in degree and amount, to the individual patient. When dysmenorrhea is associated with amenorrhea, benefit is sometimes derived from a full Weir Mitchell course, if care is exercised to regulate it in accordance with the digestive powers, the nervous susceptibilities and the temperament of the patient. It is the author's belief that the process of "blood-making" by rest, isolation and over-feeding, requires, like all other "cures," to be handled with discrimination; otherwise, it will not infrequently do more harm than good. Suitable hydropathic treatment is ranked high in the therapeutics of menstrual troubles. For amenorrhea associated with anemia, the moderately elevated iron spa of Schwalbach, with its carbonated *stahlbrunnen* and *weinbrunnen* springs, is most highly recommended. Spa, Franzenbad, and Marienbad are also favorably mentioned, especially the first, on account of its numerous varieties of water. If arsenic is indicated, the waters of Royat, in the Puy-de-Dome, are said to be unexcelled, besides which, the air and baths are stimulating, but the latter must be taken with caution. When electrical baths are advisable, Wilbad-Gastein is preferred. If hepatic troubles form a complication, Plombières seems to be most satisfactory. By patients with renal and bladder complications, most benefit is said to be obtained at Kissengen, Marienbad, Vals, Vichy, or Vittel. For purely gouty complications, the expressed preference is for Carlsbad, Contrexeville, or Brides-les-Bains. Without entering into

details, the author mentions certain auxiliary measures of treatment, such as regular bathing at a proper temperature and subsequent efficient friction of the skin, the wearing of proper clothing, the avoidance of undue exposure to cold and damp and the protection of the extremities, especially in girls with sluggish circulation. The advisability of correcting errors of diet and procuring regular action of the bowels is also mentioned. Incidentally, the high-pressure system of most modern schools is condemned as the cause of many a case of amenorrhea and dysmenorrhea.

For the medicinal treatment of menstrual disorders, the author has found *senecio* very useful in both amenorrhea and dysmenorrhea, the dose being from 2 to 6 grn. It may be given alone or in combination with *hydrastis* or *hydrastinine*, which latter drug has proved beneficial in congestive and spasmodic dysmenorrhea, especially when administered in combination with bromides. *Piscidia erythrina*, in doses of 1 or 2 grn., is recommended, in combination with *hydrastis* and *viburnum*, in dysmenorrhea and menorrhagia. *Hydrastine hydrochlorate* is considered one of the most valuable astringents in uterine hemorrhage, either as a consequence of hyperplastic enlargements, congestion, hypertrophic or fibroid states, or in simple menorrhagia. A combination that has been found very useful is *hydrastine hydrochlorate*,  $\frac{1}{3}$  grn.; *ergotin*,  $\frac{3}{4}$  grn.; *cannabine tannate*,  $\frac{1}{2}$  grn.; *stypticin*,  $\frac{1}{4}$  grn. For metrorrhagia with spasmodic dysmenorrhea and for neuralgic pains associated with ovarian hyperesthesia, *salix nigra* is strongly recommended. *Cornutine hydrochlorate*, of which the hypodermic dose is from  $\frac{1}{12}$  to  $\frac{1}{6}$  grn., has been used, alone or in combination with *ergot*, in menorrhagia and other forms of uterine hemorrhage. In menorrhagia or metrorrhagia dependent on uterine subinvolution, *cinicifuga* has been found useful. Both it and its active principle, *cinicifugine*, are sometimes efficient in amenorrhea and dysmenorrhea, attended by ovarian neuralgia. *Viburnum*, either alone

or in combination with *caulophyllin*, is said to be useful in both amenorrhea and dysmenorrhea, more particularly if either be due to some accidental cause, such as chill or shock. Of the two varieties of *apiol*, the brown and the green, the latter is preferred as an emmenagogue, but even its action is said to be variable. In amenorrhea and dysmenorrhea, benefit is sometimes obtained by combining *aletris farinosa* with *viburnum*, *caulophyllum*, and *belladonna*. In anemic conditions, *manganese dioxide* is esteemed, especially in combination with iron, quinine, *nuxvomica*, and arsenic; *hemoglobin* also is advised in such circumstances. For epileptiform seizures at puberty, when the catamenia have been suppressed or delayed, *borax* has been used successfully, and its combination with bromides is recommended. *Santonin*, as an emmenagogue, has been found unsatisfactory, as has also *castor* in dysmenorrhea.

When there is distinct ovarian pain, the addition of *camphor monobromate* to other remedies is advised. Of the coal tar preparations, *antipyrine* has been most successful in relieving the pain of dysmenorrhea. In those cases of amenorrhea and dysmenorrhea which are complicated by mitral stenosis, or, at times, aortic stenosis, with irregular and feeble cardiac action from defective compensation, the vascular tonics, *strophanthus* and *digitalis*, are regarded as indispensable. In menorrhagia and metrorrhagia, they can be given in combination with *hydrastis* and *ergotin*. *Digitalis* is preferred in these circumstances, as it produces contraction of the arterioles and combines nicely with the tinctures of *aletris*, of *viburnum* and *hydrastis*, as well as with *ergotin* and *sclerotic acid*. The danger attending the use of *morphine* for the relief of dysmenorrhea is strongly emphasized, and its administration by suppository is recommended when it must be given. As substitutes, *codeine*, *exalgin*, *butyl-chloral hydrate*, and the bromides should be tried, their action to be assisted by depletion, counter-irritation, and the



application of local sedatives, a pigment that has been found most useful over a neuralgic ovary is composed of extract of belladonna, 2 dr.; camphor, 2 dr.; mastic, 3 dr.; chloroform and tincture of aconite, each 2 oz. In congestive ovaritis, an admirable counter-irritant is made of iodine, 1 dr.; mastic, 1 dr.; rectified spirit, 1 oz.

Operative treatment consists of the rectification of displacements, the removal of morbid growths, the curettage of the diseased endometrium and, in extreme cases, the excision of the adnexa.

### The Treatment of Pneumonia

PROF. L. LANDOUZY,<sup>1</sup> of Paris, prefaces an article on the treatment of pneumonia with the explanation that, in a specific sense, it has not yet been discovered. It is still impossible to speak of *the* treatment of pneumonia as we do of *the* treatment of malaria, syphilis, or diphtheria. In other words, no known remedy directly antagonizes the cause of the disease without serious risk to the patient. When the day arrives on which, by means of injections of serum, of toxines extracted from the blood, the urine, or some other liquid or solid tissue of pneumonic patients, of anti-toxines, from whatever source obtained, and whether the product of the laboratory or empiricism, we can secure a direct, specific action inimical to the vitality of the pneumococcus, and, consequently, a similar specific influence on the pathological process, as manifested by relief of the pulmonary engorgement and reduction of temperature, on that day we shall possess an anti-pneumococcic remedy and be able to speak of *the* treatment of pneumonia.

The results of experimental vaccination against pneumonia, although interesting and suggestive, are inadequate as a basis for definite conclusions. The success of sero-therapy has been sufficient to justify hope, but not conviction. Thus, by means of this treatment, G. and F. Klemperer procured an immediate and permanent re-

duction of temperature in four out of six of their patients. Foà and Scabia, in six out of ten, and Janson, in five out of ten, were able to hasten the crisis, which occurred on the fourth to the sixth day. Similarly, Weissbecken injected 21 patients, 12 of them children, all of whom recovered, although several of his uninjected cases died during the same epidemic. However, the material is still too meager for valid inductions. The same statement applies to the local treatment, during the stage of red hepatization, by means of intraparenchymatous injections of an aqueous solution of mercury bichloride, 1 to 40,000. By making the injection on the third or fourth day, Lépine, the originator of this method, was able to report marked improvement of the general condition of the patient on the following day and a notably early defervescence. Finally, resolution was unusually rapid, especially in the injected locality. As the method of Fochier, who treats grave cases of pneumonia as he does those of puerperal septicemia, by hypodermic injections of turpentine for the purpose forming "fixation abscesses" and thereby preventing or combating the fatal termination, has given contradictory results, its value can be determined only by a series of new observations. As the pus of these artificial abscesses was aseptic in the pneumonic cases, the author is inclined to regard the treatment as little more than a form of counter-irritation.

None of these new methods having established its claim to be considered *the* treatment of pneumonia, the physician is obliged, to-day as yesterday, to rely solely on such dietetic and medicinal measures as are best calculated to aid the patient to resist the local and general ravages of the pneumococci. It is not improbable, in the author's opinion, that for a long time to come the therapeutics of pneumonia will be determined by the necessity of enabling the patient to survive the malady, and that rational treatment will depend less on the nature of the disease than on the indications that arise in each individual case. As it is at present beyond our power materi-

<sup>1</sup>Rev. de Thér., LXVII, p. 433.

ally to influence the evolution of the pneumococcus, and as the general tendency in pneumonia is toward recovery, the duty of the physician is to assist in every way the *vis medicatrix naturæ*, to watch for and to meet signs of danger, whether they are manifested by the sound lung, the heart, the nervous system, or the kidneys.

As in each case the efforts of nature vary in intensity, quality, continuity and efficacy, it is obvious that assistance must be equally various and by no means confined to the mere administration of medicinal agents. In appropriate cases, the best treatment is simple non-interference. Tribute is paid to the valuable lessons learned by the adoption of the radical system of expectation, which has facilitated the study of the natural history of pneumonia, has demonstrated its usual tendency to spontaneous recovery after the termination in defervescence of its cyclical course, and illustrated the fallaciousness of comparisons as evidence of the influence of drugs.

So numerous have been the instances in which those in attendance on a case of pneumonia have themselves developed the disease, that the contagiousness of the malady may be regarded as demonstrated. Preventive treatment, therefore, receives passing notice. As the sputa are dangerous in either fresh or dry condition, they should be received in a vessel containing an antiseptic solution, and subsequently should be thrown into the fire. Cloths used to wipe the lips of patients too feeble to expectorate should also be burned. All objects used by the patient, including the bedding, should be properly disinfected, and a similar precaution should be observed with regard to the hands of the nurse. Furthermore, it is advisable for everyone, especially those attending a case of pneumonia, to gargle the throat daily with some antiseptic solution, such as thymic acid.

The actual treatment of a pneumonic patient should be entirely a work of symptomatic inspiration. It consists of grasping, comprehending, and fulfilling the indications which, from day to day, depend

on the general condition, the reactionary powers, and the action of the various organs. The attention of the physician should be devoted to the patient, irrespective of the disease, and his constant endeavor should be to aid the recuperative efforts of nature by the judicious use of therapeutic measures. In other words, the physician should be an opportunist, without other care than to obey, without preconceived ideas, every clinical indication. In this way, he will escape the dangerous suggestions of systematic medication. Like every other systematic method, routine expectancy is here bad practice; therapeutic opportunism is preferable for the reason that it offers the patient constant support to the defensive reactions, on the sufficiency of which depends his survival of the disease. Therapeutic opportunism aids spontaneous efforts and develops others tending to the assuagement of pain, the diminution of dyspnea, the relief of engorgement of the heart, the enhancement of the *vis a tergo*, the increase of diuresis, the conservation of strength, the relief of nervous exhaustion, etc. Such therapeutic interference is more than sufficient in the ordinary form of pneumonia when it attacks an organism free from visceral lesions, not weakened by age or intoxication or antecedent disease, and not exhausted by recent or concurrent maladies which, like gripe, favor the vitality and virulence of the associated pneumococci while they diminish the resisting powers of the patient. Such therapeutic interference is always sufficient in a child, if there is no antecedent lesion, as of the heart, liver, or kidneys, and is generally so in the adult who, supported at the first evidence of organic or functional disability, reaches, safe and sound, the hour of defervescence when the pneumococcus, losing vitality and virulence, ceases its infectious and toxic work.

The attitude of watchfulness, combined with readiness to render assistance whenever needed, is strongly emphasized as the only safe one for the physician who does not wish to see his patient, after supporting the first attack of the infection, suc-

cumb from lack of strength to carry him to the end, or to see him die cured of pneumonia, as sometimes happens when the treatment is addressed to the disease. Too few physicians, we are told, realize that, excepting in certain malignant types of the disease, a man dies seldom of pneumonia, but summubs generally *apropos* of his pneumonia. Ordinarily, if a man's life is in peril, it is because of the existence of some organic lesion, or else because an injudicious régime or course of treatment has robbed him of the strength that would have sufficed to carry him through his eight days of toxic infection. In the latter case, probably his physician has prescribed some reputed anti-pneumonic remedy without realizing that, in the circumstances, it is likely to do more harm than good. Thus, the benefits of antimony are hardly worth the price paid for them, the prostration of the patient's energies, the abolition of the nervous reactions, so indispensable in the battle against the disease, and the draining off by skin and bowels of fluids needed to flush the kidneys. Physicians who treat the disease instead of the patient are accused of paying too little attention to the general condition, the action of the heart, the character of the pulse and less still to the renal secretion, so that the patient reaches the period of defervescence with strength exhausted, heart engorged, arteries without tension, kidneys unirrigated, nervous system poisoned, and cells dehydrated. The mere recovery of a case of pneumonia is declared to be no cause for pride, as an equally good result would probably follow abstention from all treatment.

In the child, lobar pneumonia is ordinarily so benign that the best treatment is said to be simple expectancy, as all active medication is likely to do more harm than good. Cases of the kind called cerebral by Roger may demand the careful administration of potassium bromide and chloral. Frequently, however, cold compresses, applied to the thorax from four to six times daily, are sufficient to relieve the cerebral symptomatology as well as insomnia, dyspnea, rapidity of the pulse, and pain in the side. If the last symptom is persistent and

very acute, cupping with scarification will have an almost magical effect. Of other treatment, little is recommended beyond liquid diet with small quantities of brandy and digitalis. Morning and evening, a warm enema is advised and, at need, a little castor oil.

In adults who enjoy equal freedom from visceral lesions, the course of pneumonia is almost as benign as in the child, and requires ordinarily but a minimum of interference. Fresh air, quiet, and repose ought to be assured to every pneumonic patient. The bed covering should not be sufficiently heavy to cause sweating, which is not only fatiguing and disagreeable, but diminishes by so much the diuresis. To promote the latter, as well as to relieve thirst, the patient should be encouraged to drink freely, at the temperature of the room or colder, milk, water, pure or acidulated, coffee, tea, bouillon, diluted wine, etc. For the pain in the side, cupping with scarification is advised, morphine to be used only in case of failure. Dyspnea is met by means of free dry cupping and by the application to the affected side of a wet compress, temperature 60° F., covered with rubber cloth. If these measures fail and there are signs of engorgement of the right heart, with full pulse, and distended neck veins, bleeding is indicated, provided that the patient is not too weak. It is the author's opinion that this last measure is employed far too seldom in pneumonia, as it possesses certain great advantages over medicinal treatment for the relief of pulmonary congestion and engorgement of the right heart. It is prompt, sure, direct, accurate, without side effects, and requires no co-operation on the part of the patient, thus offering a strong contrast to tartar emetic and kermes mineral, the employment of which drugs in pneumonia is formally condemned. Equally decided objection is made to blisters as a source of certain torture, possible danger, and exceedingly doubtful benefit. As the percentage of recoveries under this treatment fails to demonstrate its utility, its complete abandonment, as a measure of useless cruelty, is strongly urged.

Of the desirability of reducing the tem-



perature of pneumonic patients, the author is by no means convinced. Elevated temperature is but one symptom of a febrile condition and by no means the most important one, the pulse being far more significant. In any case, the question of interference is settled, not by consulting the thermometer, but by observing the patient's behavior. Hyperthermia is regarded as purely relative and contingent. The rule followed is to employ no antithermic measure, beyond cool bathing of the limbs and face, so long as the pulse remains below 100 and the heart and nervous system are in good condition. Of medicinal antipyretics, antipyrine is absolutely rejected as far too dangerous when every effort is being made to conserve the patient's energies. Little more commendation is bestowed on *veratrum viride*. Creosote carbonate, although used chiefly as a pulmonary and general antiseptic, has been found to act favorably on the temperature in pneumonia. When antithermic medication is considered advisable, reliance is placed almost absolutely on two drugs, quinine and digitalis. Quinine is valued, not only as a superior tonic and nervine, but as an antiseptic which lowers the temperature as much by the influence exerted on the organism at large as by the induced reactions against the infection. It is prescribed, not in a routine manner, but as the occasion arises, especially when signs of adynamia are observed, in doses of 1.0 to 1.5 Gm. The employment of digitalis is based on the clinical fact that it does good, especially when there is much congestion or high fever. Numerous observers have testified to its beneficial action, notably Peterscu, who administered it in enormous doses for three or four consecutive days to nearly 300 patients, only two per cent. of whom died. Without adopting the high dosage of Peterscu, the author has followed his system of prescribing digitalis, and acknowledges that its effects are unequaled, either as a reducer of temperature or as a conserver of the patient's energies. The administration of 1 Mg. daily of crystallized digitaline produces, as early as the second day, a peculiar feeling of

well-being, cessation of delirium, if previously present, diminution of albuminuria, increase of diuresis, augmentation of arterial tension and reduction of temperature. The ascription of these striking effects to the cardio-tonic action of digitalis is believed to be a mistake, as Peterscu's patients were soldiers, a class little in need of heart tonics. On the other hand, the contention has been raised that the low death-rate was in spite of the digitalis, rather than because of it, the patients being a select class, young, vigorous, and in sound condition. That this view is not entirely erroneous, the author admits, but points out that it fails to account for the reduction of temperature, relief of dyspnea, and having happy results following the exhibition of the remedy. A possible explanation of the beneficial effects of digitalis is offered in the author's suggestion that its administration in large doses may cause an intoxication antidotal to that of the pneumococcus; at any rate, its action seems to him very similar, in some respects, to that of the anti-pneumonic serum of Pone, as reported by Cantiere. Without insistence on this theory, it is nevertheless maintained that the good effects of digitalis are obtained whether the heart be strong or weak, in the child as in the adult, and that similar results do not follow the administration of any other heart tonic, such as strychnine, caffeine, or sparteine. Apart from its quasi-specific use, digitalis is of great value when signs of impending heart failure develop. At such times, it is best given in combination with other heart tonics, such as those already mentioned.

In the aged, the only special indication for treatment is to support the patient's enfeebled energies. The most useful remedies are digitalis, strychnine, camphorated oil, acetate of ammonia, caffeine, and cinchona. When Bright's disease or diabetes exists as a complication, caffeine should be administered and massive injections of serum should be given for the purpose of hydrating the tissues and diminishing the tendency to uremic or diabetic coma. Malarial cases should receive quinine

in large doses, not only during the acute period, but also after defervescence. The indications in cases complicated with heart disease depend on several circumstances, the form, nature, and degree of the affection, the functional action of the heart, the relative integrity of its muscle, the easy or difficult distensibility of its cavities, and its reaction to therapeutic influences. In view of these considerations, digitalis will at times prove less useful than caffeine, strychnine, theobromine, or sparteine; occasionally, bleeding or cupping with scarification is indicated. Alcoholic cases, if excited and delirious, should receive large doses of alcohol, combined with laudanum. Otherwise, injections of ether or strychnine should be associated with the administration of brandy or rum after the continuous method of Todd, the daily quantity to be 250 Gm. mixed with one liter of water. In these cases, as in those suffering from nervous debility, or the weakness of age, special attention must be devoted to the action of the kidneys and bowels if they are to be brought safely through the crisis. Pregnancy as a complication requires caution in the employment of digitalis and quinine, which may be replaced by bleeding and cupping with scarification.

When pneumonia is of the malignant type, as manifested by extremely high temperature, rapid pulse, great prostration, etc., the method of Récamier-Brand is recommended, provided that contra-indications, such as age, weak heart, arteriosclerosis, or Bright's disease are not present. Although, as a rule, the baths should be given every two or three hours, for ten minutes at a time, and at an initial temperature of 75° F., to be subsequently reduced six or eight degrees, much modification of these details may be dictated by the manner in which the patient reacts. When baths are impracticable, the indications should be met by means of cool enemata, wet packs, partial or general, and cold sponging. In these malignant cases, also, great benefit may be derived from the hypodermic injection of artificial serum, in quantity and frequency depending on the

vascular tension and the diuresis. These injections should be given freely if bleeding has been practiced. Cold baths and serum injections are measures of the greatest utility in hyperthermic, adynamic cases of pneumonia; being tonic, antithermic, and diuretic in effect, they tend to restore the nervous and vascular tone and to rid the organism of at least a portion of the poison with which it is overwhelmed.

Convalescence from pneumonia ordinarily requires no particular treatment, the best medicine, in such circumstances, being a generous diet. In the exceptional cases, the indications are for tonics, baths, friction, etc., the efficiency of which measures is often enhanced by a change of air. To provide against recurrence, antiseptic gargles should be used and carbonate of creosote should be taken internally.

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**Intestinal Obstruction** treated by the hypodermic injection of large doses of atropine is reported by Dr. Batsch.<sup>1</sup> In each of the three cases in which it was used, purgative medication had been ineffectual, the abdomen was tender and much distended, and stercoraceous vomiting had occurred. The dose of atropine administered was 0.005 Gm. ( $\frac{1}{12}$  grn.). A single injection sufficed for the relief of one patient, while another required two before the lost function was restored with simultaneous disappearance of the distressing and alarming symptoms. In the third case the treatment failed for the reason, as demonstrated at the subsequent laparotomy, that the obstruction was due to a band of fibrous tissue, beneath which the intestine had been caught and strangulated. Although this condition had lasted some time, as proven by the marked constriction rings at the ends of the incarcerated portion of the bowel, and although that portion was purple when first seen, severance of the fibrous band was followed almost immediately by restoration of color and function and the prompt recovery of the patient without a single untoward symptom. To this happy result the doctor believes that the atropine largely contributed.

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<sup>1</sup>*Münch. med. Woch.*, XLVII, p. 931.

# PROGRESS IN MATERIA MEDICA

**Sodium Cacodylate** hypodermically injected is stated by Dr. Maurice Letulle<sup>1</sup> to constitute a remarkably good aid in the treatment of *phthisis*. Its use causes no inconvenience whatever, but it must be used exclusively by injections. These should be practiced for one week in two, or better, for six days consecutively, and then rest for the week following. The use of the remedy must also be suspended during the menses. The solution employed by the author is as follows:

Sodium Cacodylate..... 6.4 Gm. ( $1\frac{1}{2}$  dr.)  
Boiled Water..... 100 Cc. (3 oz.)  
Solut. Carbolic Acid (10%) 6 drops

Bring the solution to boiling, filter through a sterilized filter-paper, and make up the volume, when cold, to 100 Cc. with boiled water. Every Cc. of the solution represents 0.06 Gm. (1 grn.) of the cacodylate.

The injections are to be made preferably in the side, hypogastric region, or buttocks. When necessary, the dose may be rapidly increased to double, 0.1 Gm. ( $1\frac{1}{2}$  grn.) of cacodylate being injected each time.

The author states that the results are not always constant, a number of advanced cases of *phthisis*, with fever and cachexia, experiencing no relief. Some of the more severely affected, however, were most greatly benefited. Cases of tuberculosis, with crepitant moist rales or even cavernous breathing complicated with hectic fever, are remarkably favorably influenced. The appetite is restored, the fever reduced, vigor increased, and bodily weight augmented.

**Iron Perchloride** is regarded by Prof L. Bourget<sup>2</sup> as the best remedy in the treatment of *gastric ulcer*. It is used in the form of a 2 per cent. solution, to which is frequently added  $\frac{1}{2}$  per cent. of potassium chlorate. The stomach is first emptied through a stomach tube and then washed out with 100 Cc. of water. Next, from 100 to 150 Cc. of the solution are introduced and then pressed out, which procedure is repeated until a liter has been used. Of the last quantity introduced, 50 to 60 Cc. are left in the stomach, and the patient is then placed in the prone posture. Five minutes later, he is given a glass of warm 2 per cent. so-

lution of sodium bicarbonate. This treatment is repeated on each of the subsequent four days, or oftener, should hemorrhage occur, and usually results in cessation of all bleeding and complete relief of the pain. The diet of the patient during this treatment is restricted to rice, boiled for at least an hour, with the addition of a little butter and salt, or to rice and milk boiled for several hours. Later, when recovery is assured, sugar is allowed. An essential part of the treatment is the employment of sodium bicarbonate to neutralize the free hydrochloric acid found in the stomach after meals. The soda should be given in warm solution, of strength not in excess of 3 per cent., and in quantity to be determined by actual test of the stomach contents during digestion.

**Mercury** is highly esteemed by Dr. Alexander Morison<sup>3</sup> in the treatment of *heart failure* associated with arterio-sclerosis. In such conditions, it is best administered in combination with digitalis, squills and hyoscyamus. Although its mode of action is disputed, and the author declines to enter into the controversy, he quotes approvingly the opinion of Sir William Broadbent that an important element of its efficiency is its lowering effect on the pulse tension. Whatever the explanation, he insists on the clinical fact that mercury is highly beneficial in these cases. In illustration, he cites the history of a laborer, aged 67, who, when admitted to hospital, had a subnormal temperature, a pulse of about 160, very irregular as to both rhythm and force, comparatively few beats reaching the wrist, cyanosis, orthopnea and anasarca as high as the waist. The urine was very scanty and somewhat albuminous. He was at first given strophanthus, strychnine and diuretin every four hours, 1 grn. of calomel daily, bromide and trional at bedtime, and saline cathartics, but without noteworthy benefit. Ten days later, the strophanthus was replaced by digitalis and the dose of calomel was doubled; the hypnotics were also increased. Some nine days later, as there was still little improvement, all previous medication was discontinued and there was ordered, three times daily, one ounce of brandy and a diuretic pill composed of 1 grn. each of powdered digitalis leaves, powdered squills, blue mass and extract of hyoscyamus. Within a week,

<sup>1</sup>Rev. de Thérap., LXVII, p. 464.

<sup>2</sup>Ther. Monatssh., XIV, p. 350.

<sup>3</sup>Lancet, I, 1900, p. 1881.



the anasarca had somewhat subsided, the heart's action had improved, and the urine had increased in quantity and was free from albumin. Ten or eleven days later, the volume of urine reached a maximum of 110 ounces and there was general improvement of the patient's condition. Shortly thereafter, the pill was discontinued on account of tenderness of the gums, but a satisfactory flow of urine kept up for about two weeks. Resumption of the medication soon increased the quantity again, and the same result was obtained on subsequent occasions. Meanwhile, the patient regained his appetite and ability to sleep, the anasarca completely disappeared and the heart's action became satisfactory except in respect of rhythm.

**Potassium Iodide** is administered hypodermically by Prof. E. Lang<sup>1</sup> when syphilitics cannot tolerate it by either stomach or rectum. The solution used is composed as follows:

Potassium Iodide..... 5 Gm. (75 grn.)

Codeine Hydrochlorate..  
0.05 to 0.1 Gm. ( $\frac{3}{4}$  to  $1\frac{1}{2}$  grn.)

Distilled Water..... 5 Cc. (50 min.)

One to 3 Cc. of this solution is injected each day after preliminary warming to insure perfect solution. The codeine prevents pain without interfering with the rapidity of absorption. Sometimes, when iodoform is preferred, the following formula is used:

Iodoform ..... 5 Gm. (75 grn.)

Liquid Vaseline ..... 6.5 Gm. (98 grn.)

Of this mixture, 0.5 to 1 Cc. is injected every day or every second day. Finally, rapid absorption of certain syphilitic infiltrations is produced by injecting beneath the adjacent skin not to exceed 0.1 Cc. of a 10 per cent. suspension of iodoform in liquid vaselin.

**Anti-streptococcus Serum** was used by Dr. A. W. Harrison<sup>2</sup> in a very severe case of *facial erysipelas*, with exceedingly gratifying results. At first the patient was given quinine and the tincture of iron perchloride internally, and equal parts of ichthyol and lanum externally. In spite of these measures, the inflammation extended and the general condition became worse. Within three days, the iron had to be stopped because of intolerance. By that time delirium had supervened. Four days later, the patient was so unconscious that she passed all excretions in bed. She was then receiving

half an ounce of brandy every hour. Three days later, the temperature being still high and weakness more marked, with muttering delirium, digitalis and strychnine were ordered and an ice bag was applied to the head. Nevertheless, the patient continued to sink and was practically moribund on the second day following, when she received the first injection of 10 Cc. ( $2\frac{1}{2}$  fl. dr.) of the serum. Four hours later, she had a short interval of consciousness; and, four hours later still, the temperature had materially declined and the quality of the pulse had improved. Another injection of 10 Cc. was given with the result that both temperature and pulse were below 100° F. the following morning. A third injection was then given, followed by a fourth in the evening. By the next day the delirium had terminated. After this, there was one injection daily until eight in all had been given. Convalescence was rapid and uninterrupted. The doctor is very positively of the opinion that the serum saved the patient's life, which could not have lasted twenty-four hours longer without it.

**Methylene Blue** has been employed by Dr. Olling<sup>1</sup> in three cases of tertian fever, in three cases of tropical fever, in one case of quartan fever, and in one case of enteric fever. The remedy was given in doses of 1 Gm. (15 grn.) per day, and was always well borne by the patients. It did not appear to act like quinine, but nevertheless it lowered the temperature, and the bacteria disappeared from the blood. It has not quite the power possessed by quinine, so far as the prophylactic treatment of malaria is concerned.

**Petroleum Oil** in the treatment of *phthisis* is strongly indorsed by Dr. William D. Robinson,<sup>2</sup> of Philadelphia. In fifty selected cases, with impairment of digestion, nutrition and weight, he administered the purest oil in doses of 1 or 2 fl. dr. four times daily for periods varying from three to six months. In each case there followed improvement in health, strength, and feeling of well-being, with increase of weight varying from  $5\frac{1}{4}$  to  $23\frac{1}{2}$  pounds. The oil caused no disturbance whatsoever and may, apparently, be given indefinitely and in almost any quantity without ill effects. As the entire amount of the remedy ingested reappears unchanged in the feces and cannot, therefore, exert any direct influence on the organism, the author seeks to explain its undoubted activity by emphasizing its mechanical and solvent properties. He believes

<sup>1</sup>*La Sem. méd.*, XX, p. 230.

<sup>2</sup>*Brit. Med. Jour.*, 2062, p. 18.

<sup>1</sup>*Les Nouv. Rém.*, XVI, p. 285.

<sup>2</sup>*Med. News*, LXXVII, p. 55.

that it is an indirect intestinal antiseptic, causing the germs to die of starvation or suffocation by mechanically interfering with their freedom of access to air and nutriment. The digestive powers of the patient, thus relieved of their handicap, are enabled to work more efficiently; and the defensive apparatus of the organism, no longer divided, may be concentrated against the enemy in the respiratory organs.

Petroleum oil is further recommended as an ideal solvent and diluent for the various direct remedies, whether administered by mouth, hypodermically, or by means of a nebulizer. Its solvent capacity, although great, may be materially increased by the addition of a little ether, chloroform or oleic acid. Finally, it is regarded as the ideal remedy in the treatment of all forms of constipation and of tubercular diarrhea.

**Iron Iodide**, especially the syrup, is recommended by Dr. J. C. Wilson<sup>1</sup> in the treatment of certain forms of *infective arthritis*, particularly gonorrheal. These cases are usually very refractory to ordinary rheumatic remedies, such as the salicylates, alkalies and iodide of potassium, and are by no means invariably benefited by hot air. Under the syrup of iron iodide they frequently improve very rapidly and even become completely cured in a comparatively short time. The dosage of the remedy seems to be 30 min. three or four times daily at first, with an increase of 1 min. daily until double the original quantity is taken. As to the mode of action of the remedy, the author apparently has no theory.

**Guaiacol Carbonate** and the salicylates have been very successfully used in a number of cases of *pneumonia* by Dr. Willson O. Bridges,<sup>2</sup> of Omaha, who believes them to be true specifics, acting directly against the bacterial cause of the disease. After the stage of congestion, in the enfeebled, and when there are heart lesions, he prefers the guaiacol on account of the depressing action of the salicylates. With both drugs he combines strychnine, in the one case to counteract the depressing effect on the heart, and in the other to obtain its influence on the nervous system and to prepare the patient for large doses of the specific, should they be required. Other drugs, such as calomel, codeine, digitalis, etc., he employs as the occasion arises. When sodium salicylate was administered, the usual dose seems to have

been 15 grm., every two hours at first, and then at longer intervals. The dose of guaiacol carbonate varied from 8 to 12 grm. every two hours. It is advised that this medication be continued until convalescence is well established in order to avoid the danger of relapse. The cases reported as having received this treatment were mostly typical pneumonias, some very severe. Defervescence was invariably by lysis and generally began within three days after the adoption of the specific medication.

**Fersan** is considered by Dr. James Silberstein<sup>1</sup> to be one of the best of all *iron preparations*, for the reasons that it is nearly or entirely absorbed, causes no disturbance of the digestive tract and is an albuminous food equal in value to somatose. The remedy is best administered in cold milk after having been first rubbed into an emulsion with a little water. In a number of cases cited by the author, the use of fersan for from four to six weeks resulted in an increase of about 50 per cent. in the red corpuscles and of from 50 to 100 per cent. in hemoglobin; most of the patients also gained several pounds in weight. In no case was there any action on the teeth or any disturbance of the stomach or bowels. The feces were entirely free from the characteristic color due to the presence of iron sulphide.

**Alcohol** has been successfully used by Dr. H. Rodman,<sup>2</sup> of New York, in the treatment of *carbolic-acid poisoning*, about two ounces of the pure acid having been swallowed. Although he was summoned promptly, he found the patient in a state of collapse, unconscious, with subnormal temperature, cold extremities, cyanotic lips, thready and scarcely perceptible pulse, extreme dyspnea and complete loss of conjunctival and pupillary reflexes; on the lips and tongue eschars had already formed. Four ounces of alcohol were poured into a stomach-tube passed only as far as the pharynx. Two or three minutes later, the tube was pushed down to the stomach and the latter was then washed out with warm water and again with diluted alcohol. Within an hour consciousness had returned, the pulse had considerably improved, the dyspnea had become less urgent and the general appearance less cyanotic. The usual means of combating shock were then employed and whisky was given hypodermically at frequent intervals with the result that, an hour and a half later, the patient was quite cheerful and experienced no discom-

<sup>1</sup>*Med. News*, LXXVII, p. 86.

<sup>2</sup>*Jour. Amer. Med. Assoc.*, XXXV, p. 74.

<sup>1</sup>*Ther. Monatsh.*, XIV, p. 369.

<sup>2</sup>*Med. Record*, LVIII, p. 70.



fort except in the naso-pharynx. During the next two days the patient had some fever, was unable to pass her water, which was brownish-black in color, sufficient in quantity and not albuminous, and experienced some difficulty in swallowing. Subsequent history uneventful.

**Hedonal**, a new product of the urethane group, is the subject of reports by Drs. Paul Schuster<sup>1</sup> and A. Eulenburg,<sup>2</sup> the former using the remedy in 38 and the latter in 41 cases of *insomnia*, with practically identical results. On account of its slight solubility in water, it is best given dry on the tongue and washed down with some aromatic elixir to correct the rather disagreeable taste that it leaves in the mouth. Doses of less than 1 Gm. (15 grn.) were generally inefficient, and, in many cases, as much as 2 Gm. (30 grn.) was needed to produce sleep for six or seven hours. When successful the administration of the drug was generally followed within a half hour by a quiet, dreamless sleep. As hedonal is devoid of narcotic powers, it failed uniformly in cases of *insomnia* due to pain, as in neuralgia, *tabes dorsalis*, etc., and it was equally inert in cases of maniacal excitement. The best results were obtained in simple neurasthenic conditions. The remedy was taken without manifest repugnance by most patients, and no unfortunate after-effects were observed, although in one case ten doses of 2 Gm. (30 grn.) each were given within twelve days. Diuresis, which was a constant result in animals experimented on, was by no means uniformly observed, and in no case was albumin or sugar found in the urine. Both reporters agree that hedonal is worthy of a place in the *materia medica*.

**Veratrum Viride** is indorsed by Dr. R. R. Kime<sup>3</sup> as the safest and most certain remedy for *puerperal eclampsia*. In meeting this condition, his custom is to use chloroform for immediate control and then to administer five or ten drops of Norwood's tincture hypodermically. Subsequent dosage, sufficient to keep the pulse about normal, is by mouth, in combination with a diuretic, such as buchu, juniper, or potassium acetate. Simultaneously, the alimentary tract is cleared out by means of calomel and salines, and labor is forced. Chloral and bromides, though sometimes useful as aids, are considered uncertain in

their action. Apomorphine, in spite of its promptness and reliability, is objected to on account of the depression and nausea following its exhibition. Morphine is regarded unfavorably, as is also venesection. When there is reason to anticipate convulsions, the following line of treatment is instituted: Shortly before each meal, one half to one teaspoonful of hydrogen peroxide is given in as much hot lithia water as the patient will drink. Three times daily, a diuretic tablet, containing one grain each of powdered digitalis, squills, buchu, and potassium nitrate, is given with plenty of lithia water. A bitter tonic is ordered at meal times, with iron in case of anemia. Laxatives are given according to circumstances.

**Passiflora Incarnata** is recommended by Dr. Robert C. Kenner,<sup>1</sup> of Louisville, Ky., as almost a specific in *chorea*. The preparation preferred by him is a concentrated tincture, which he gives in doses of 20 or 30 drops or more every two hours when the patient is awake. He considers the mildly laxative and diuretic actions of the remedy as important adjuvants to its direct effects on the nervous system, and emphasizes the fact that under its influence the patient obtains an adequate amount of sleep. Although he condemns arsenic and seldom uses any other remedy than the *passiflora* in uncomplicated *chorea*, he advises forced diet and, when anemia is present, some preparation of iron.

**Anti-streptococcus Serum** has been used by Dr. W. H. DeWitt<sup>2</sup> with very gratifying results in two cases of *anemia*, one pernicious, the other simple. The former case presented a typical picture of the condition, being profoundly anemic, with the characteristic lemon-colored skin, under which there were numerous extravasations. The slightest exertion was followed by dyspnea and palpitation, and there were occasional hemorrhages from the nose and bowels. For six years she had suffered from digestive disturbances. Examination of the blood showed 4,000 white and less than 1,000,000 red corpuscles to the Cc., and 30 per cent. of hemoglobin. Eight injections of 8 Cc. each were given at intervals of two or three days. After the third, improvement began and progressed steadily. Three days after the last injection, the blood contained 5,000 white and 4,960,000 red corpuscles,

<sup>1</sup> *Deut. Med. Woch.*, XXVI p. 19.

<sup>2</sup> *Ibid.*, p. 20.

<sup>3</sup> *Atl. Jour.-Rec. of Med.*, II, p. 233.

<sup>1</sup> *Med. Sum.*, XXII, p. 140.

<sup>2</sup> *Cin. Lanc.-Clin.*, LXXXIV, p. 61.



and 90 per cent. of hemoglobin. In correspondence with this improvement of the blood, the patient had gained weight, her appetite had increased, her pulse was stronger and less rapid, and the yellow tinge of the skin had nearly disappeared. In the other case, although an examination of the blood was unfortunately not made, the extreme anemia was unmistakable. To this patient six injections were given at intervals of three days. Improvement began promptly and progressed rapidly.

**Nosophen** and **Antinosine** are strongly commended by Dr. J. S. Caldwell,<sup>1</sup> of Baltimore, as local applications in the treatment of all forms of *ulcers*. In simple ulcer, he relies on these agents alone, believing that they accelerate the healing process. Inflamed ulcer he first treats with soothing applications combined with rest and elevation of the part, and the internal administration of laxatives, diaphoretics, etc., until the inflammation subsides. In sloughing ulcer, he endeavors to build the patient up by means of concentrated food and stimulants, using opium both internally and locally, for the relief of pain. In edematous ulcer, his course is similar, except that opium is omitted and iron arsenate and digitalin are administered. Indolent ulcer he treats by making a number of radiating incisions through the hard, limiting ring, after which he cleanses the ulcer and applies a strong (50%) solution of antinosine, repeating every few days until improvement is marked, when nosophen powder or a ten-per-cent. nosophen salve is substituted. Internally he gives a tonic and  $\frac{3}{4}$  grn. strychnine arsenate three times daily. In hemorrhagic and varicose ulcers, he uses an elastic stocking, in combination with rest and elevation, and combats vasomotor disturbances with ergot and iron arsenate. On mucous membranes, he first applies antinosine solution and then styptic collodion, giving internally, every two hours,  $\frac{1}{34}$  grn. of strychnine arsenate and  $\frac{1}{67}$  grn. of codeine sulphate.

**Dormiol** is highly commended as a hypnotic by Dr. J. Moir,<sup>2</sup> L.R.C.P.Ed., who cites the following cases, to illustrate the uniformly satisfactory results he has had with it in various types of insomnia:

Case I.—W. J. C., engine driver, age 43, suffering from rheumatic fever, had no sleep for a week. Gave him two capsules, each containing  $7\frac{1}{2}$  min., in the course of the eighth day, with

the result that the sleeplessness was relieved, and that symptom was removed. He had, of course, in addition, the treatment necessary for his complaint.

Case II.—Mrs. K., age 50, suffering from nervous depression, despondency, and sleeplessness. At night, for several nights, 30 min. doses were given, with the result of procuring sleep, and on the nights dormiol was omitted she did not sleep.

Case III.—R. P., age 52, laborer, suffering from enteric fever of low, adynamic type, with symptoms of rheumatism; restless and sleepless. On one occasion he was given six capsules, containing  $7\frac{1}{2}$  min. each—two three times a day—with good hypnotic effect, but he died in the Royal Bucks Hospital from exhaustion due to his illness.

Case IV.—R. S., schoolboy, age  $13\frac{1}{2}$ , suffering from influenza and delirium, on two nights had 30 min. of the 10-per-cent. dilution dormiol, producing better rest and sleep, and, omitting it the third night, found that he had slept fairly well, so that it was not again necessary to resort to it. He recovered in twelve days after the attack commenced, and was then put upon Parrish's food to get up his strength and appetite.

Case V.—P. T., age 35, artist, suffering from the effects of alcohol, extremely nervous, with total loss of sleep for several days. He was given sodium bromide and calumba mixture three times a day, and each night for a week 40 min. doses dormiol at bedtime, with the result that at the end of the week he could eat and sleep without medicines, and was able to resume his occupation. On each night that he took the dormiol he had a good sleep, but from the feeling of nausea from the drink he was not able to use the brush or the pencil until the week had elapsed.

From these cases the author concludes that dormiol may be relied upon as a hypnotic where other remedies might be likely to fail.

**Argentamine** has been employed as a substitute for silver nitrate in various diseased conditions of the mucous membranes by Dr. Bergel,<sup>1</sup> who reports generally satisfactory results. The theoretical claim of greater penetrability for the newer preparation has been corroborated by his experience. The relative strength of the two drugs is as 10 to 1, that is, a 10 per cent. solution of argentamine corresponds to a 1 per cent. solution of silver nitrate. In gonorrheal urethritis, injections were given of a strength of 1 to 400 at first, which was cautiously increased later to 1 to 200. The later injections, when retained ten minutes, were found to be irritating in some cases, and, in general, the most beneficial effects were obtained with solutions of the initial strength. In this disease, the superiority of argentamine seemed to be clearly established. In chronic cases, stronger solutions were well borne. To local areas of the posterior urethra, 10 per cent. solutions were applied with good re-

<sup>1</sup> *Med. Sum.*, XXII, p. 136.

<sup>2</sup> *Med. Press and Circular*, 1900, p. 573.

<sup>1</sup> *Ther. Monatsh.*, XIV, p. 361.

sults, but 20 per cent. solutions were more irritating and unendurable than 2 per cent. of silver nitrate. After the acute stage of gonorrheal cystitis, the bladder was irrigated with solutions in distilled water of 1:1000 to 1:500 without the slightest disturbance, such as tenesmus, burning, etc. These mild solutions also affected the urethral disease very favorably. Similar good results were obtained in gonorrheal vaginitis and cervicitis; in the former, by irrigation with a solution of 1:1000, and in the latter, by applications of the strength of 5 to 10 per cent. In such affections of the throat as are usually treated with silver nitrate, argentamine was found to be equally or more efficient and less irritating. In the region of the eye, its superiority was not demonstrated except in respect of the irritation following its use, although the fact that it is not contraindicated by affections of the cornea is an element in its favor.

Internally, the remedy was first administered with good results in a case of tubercular diarrhea. Since then, it has been tried in a number of diarrheal conditions after the subsidence of the acute symptoms. The dose varies, according to the age of the patient, from a teaspoonful to a tablespoonful of a  $\frac{1}{2}$  or  $\frac{3}{4}$  per cent. solution, every two or three hours. Occasionally a 1 per cent. solution was used, but it sometimes caused symptoms of intestinal irritation. In these doses, the remedy seemed to be more efficient than silver nitrate. Excellent results were also obtained in cases of catarrh of the colon by repeated irrigations with a 1:1000 or 1:500 solution.

**Ergot** is warmly commended by Dr. Eugene R. Corson<sup>1</sup> for the treatment of various diseased conditions of the prostate. He finds it most useful in the congestion and inflammation caused by gonorrhea. If pain is prominent, the following prescription is ordered:

Tr. Aconite..... 1 fl. dr.  
Tr. Gelsemium..... 2 fl. dr.  
Antipyrine..... 2 fl. dr.  
Ergotole..... 1 fl. oz.  
Water..... to make 4 fl. oz.

Of this he gives a dessertspoonful in a wineglass of water every one, two, or three hours. When the ergotole is given alone, larger doses are prescribed. Frequently the action of the ergot is aided by combination with a potash salt, generally the bromide. In sexual weakness dependent on prostatic irritation, ergot has proved

very serviceable. Even in the prostatic enlargement of later life, it is useful, though, of course, not curative.

**Urotropin** is regarded by H. E. Drake-Brockman<sup>1</sup> as a valuable remedy in suitable cases. As a urinary antiseptic, it is indicated in cystitis, which it usually promptly relieves. The same action makes it useful when, as in typhoid fever, pathogenic microorganisms are excreted with the urine. As a uric acid solvent, it has been given with benefit in cases of gout, rheumatism and uric acid diathesis. In some of these cases, its solvent power is enhanced by combination with salicylic acid. When given in sufficient quantity, 30 grn. per diem, to produce a diuretic effect, it occasionally causes slight purging, and still larger doses have been known to excite vesical and urethral pain, with slight hematuria. These disagreeable symptoms immediately subside, however, upon discontinuance of the remedy. Administered in aerated water, urotropin is almost tasteless.

**Atrophic Rhinitis** can be completely cured in almost every case by sufficiently persistent treatment, according to Dr. R. J. Wenzel,<sup>2</sup> of Hanover, Kan. For cleansing purposes, he endorses both Dobell's and Seiler's solutions, but expresses a preference for the following, a teaspoonful of which he dissolves in a half pint of warm water and uses twice daily as a douche or spray:

Salicylic Acid..... 1 dr.  
Sodium Biborate,  
Sodium Bicarbonate,  
Sodium Chloride..... of each  $\frac{1}{2}$  oz.  
Oil Peppermint..... 10 min.

After cleansing, he applies some oily preparation to the mucous membrane. To stimulate the atrophied glands, he employs a spray, much used in the Chicago Clinical School, and composed as follows:

Carbolic Acid..... 20 grn.  
Aristol..... 40 grn.  
Oil Tar,  
Oil Cubeb..... of each 1 fl. dr.  
Oil Pine.....  $1\frac{1}{2}$  fl. dr.  
Camphor,  
Menthol..... of each 30 grn.  
Thymol..... 10 grn.  
Oil Eucalyptus..... 10 min.  
Albolene..... to make 4 fl. oz.

In addition to the above treatment, the Gottstein cotton tampon, either plain or saturated with some mildly stimulating so-

<sup>1</sup>*Atl. Jour.-Rec. of Med.*, II, p. 245.

<sup>1</sup>*Lancet*, I, 1900, p. 1876.

<sup>2</sup>*Kans. City Med. Index-Lancet*, XXI, p. 240.



lution, should be inserted each night and removed in the morning.

Although the above measures will suffice to cure most cases, if persisted in for a few months, sometimes excessive atrophy demands more powerful medication. In such circumstances, after the usual cleansing, the following solution is applied several times weekly with a probe wrapped in cotton.

Iodine ..... 20 grn.  
 Carbolic Acid,  
 Menthol..... of each 30 grn.  
 Thymol..... 15 grn.  
 Tr. Benzoin,  
 Glycerin..... of each 1½ fl. oz.

Or, trichloroacetic acid in various strengths may be employed as a local stimulant. Finally, the importance of general treatment is alluded to.

**Chorea** has been treated by Dr. Garand,<sup>1</sup> of the Hospital of Saint-Etienne, who reports having cured three cases by means of rectal injections of sodium cacodylate. The patients were girls of 12, 14, and 8 years respectively. A solution of 1:400 was employed, of which one injection of 5 Cc. was practiced (in the first two cases) daily for five days, then two injections for the next five days, then three injections of a similar dose for the succeeding five days, after which the injections were suspended for five days, and then begun over again, as before. The total of sodium cacodylate taken during a month of treatment amounted to 0.75 Gm., and at the close of this period, not the slightest sign of chorea was to be perceived; nor did any symptoms supervene even after two week's suspension of all treatment. The third case was similar, only the doses were smaller. Besides the very pronounced success, it is remarkable that not the slightest phenomenon of intolerance was exhibited by the patients. The remedy was always perfectly well borne.

**Burns** of the second degree, according to Dr. G. S. Armstrong,<sup>2</sup> should be converted into open ulcers by the prompt and thorough removal of every particle of the raised epidermis. To the denuded surface should be applied either pure lanolin or a mixture of castor oil, 95 per cent., and balsam of Peru, 5 per cent., the dressing to be covered with gutta percha or oiled silk. The application should be renewed daily after the gentle and careful removal of all detached tissue. In the later stages,

the substitution of dry boric acid is sometimes advantageous. The doctor claims to have treated upward of 150 cases in this manner, without once finding it necessary to administer an anodyne.

**Gonorrheal Conjunctivitis** requires, according to Dr. Allen T. Haight,<sup>1</sup> of Chicago, more energetic treatment than any disease to which the eye is subject. If only one eye is affected, the other should be hermetically sealed to protect it from the contagious discharge. The diseased organ should be washed, at least every half hour, with a solution of mercury bichloride, 1:5000, or a saturated solution of boric acid, and, every four hours, the conjunctival cul-de-sacs should be thoroughly cleansed with pyrozone. In addition, ice compresses, to be changed every few minutes, should be applied constantly, day and night, in the first stage. When there is severe pain and swelling, it is advisable to afford relief by canthotomy, slitting the conjunctiva or leeching the temples. In the second stage, when the conjunctiva has become velvety, the careful application of a 3-per-cent. solution of silver nitrate is considered the best treatment. After its use, the conjunctiva should be thoroughly cleansed with a saturated solution of common salt, so as to obviate the risk of staining the cornea. In the third stage, when acute inflammation has completely subsided, the silver is replaced by crystals of zinc or copper. In all stages, atropine should be used the moment there is any appearance of haziness or ulceration of the cornea.

**Infantile Eclampsia** is the subject of a recent editorial,<sup>2</sup> in which stress is laid on the importance of being always prepared for such an emergency by having constantly at hand, ready for instant use, an outfit consisting of chloroform, ether, chloral hydrate, passiflora, a good rectal syringe and thermometer. The writer's usual method of combating this alarming condition is by the administration of a few whiffs of chloroform to relieve the urgent symptoms, an enema of soapsuds and asafetida to empty the lower bowel and remove flatus, and a warm bath, followed by a warm or hot pack to bring the blood to the surface and thereby diminish the congestion at the nerve centers. To produce sleep or to prevent a threatened recurrence, he prefers chloral hydrate to any other drug. For the subsequent treatment, the remedy advised is passiflora, either alone or in combination with sodium bromide.

<sup>1</sup>*Les Nouv. Rém.*, XVI, p. 276.

<sup>2</sup>*Med. Sent.*, VIII, p. 230.

<sup>1</sup>*Chic. Clinic*, XIII, p. 317.

<sup>2</sup>*Med. Sur.*, XXII, p. 130.



# The Prescription

We wish to have our readers use this department with the utmost freedom. Any question about the prescription or about any substance used in prescriptions comes within its range. We shall do our best to find correct answers for all, and if we fail for lack of information at hand, some one of our readers may be able to give the right reply. On questions of therapeutics or practice we shall not attempt to give any opinions of our own, but find for the questioner what the best available authorities on such subjects have to say upon them. Let every reader resolve his doubts about compatibilities, doses, latest remedies, best methods of administration, dangers of remedies, etc. Send in favorite prescriptions and let others be benefited by what you have discovered. We shall give full credit for all such information. As some persons do not care to have their names appear as the authors of queries, we will refrain from giving names in this connection when requested to do so. Sometimes it is an advantage to have the writer's name published, and in such cases we hope that overdiffidence will not interfere with the right.

**Dr. M. A. Davis**, of Philadelphia, Pa., says: In my private practice for the past six years I have used the following prescriptions for typhoid fever:

Carbolic Acid .....	10 drops
Syr. Orange.....	½ fl. oz.
Water.....	to make 2 fl. oz.

Give of the above mixture one teaspoonful every two hours. Results have been very satisfactory. I use Merck's silver label brand of acid. By this treatment I hold temperature at 99 or thereabouts, and patient is made comfortable. If there is much sweating I give 10 drops of aromatic sulphuric acid freely diluted, several times a day. I have the patient bathed and changed as frequently as necessary. By this treatment I cut a case short a week or ten days, while patient is made very comfortable, making the treatment doubly advantageous. I have a patient now, a young man 17 years old, whose temperature at onset was 104° in morning. Made first visit June 23, and gave 25 drops of carbolic acid in three ounces of mixture as above, giving teaspoonful every two hours. On June 24 temperature was 99; on June 25 it had fallen to 98.4 and has not risen above that point since. When pulse became tardy I suspended treatment in part, giving but one or two doses in twenty-four hours. For tardy pulse I use ½ oz. of whisky every two hours. My patient is now convalescent, his appetite is improving, his tongue is moist and general condition good. The remedy should be used early. The milder prescription should have preference in inebriates and debilitated subjects. I make no claim to priority in using carbolic acid in typhoid fever, but had the remedy been pushed to physiological effect more would perhaps have been known of its merits.

**Dr. C. D. Gibson Mack**, of Boston, Mass., writes: "Mr. H. had a discharge of a very offensive nature from the middle ear, which

was of a yellowish color, and affected his hearing, as a result of inflammation of the ear, which was caused by the introduction of cold water. Ichthalbin was prescribed in 20-grn. doses three times daily, which dried up the discharge and the hearing was restored."

The following list of prescriptions has been culled from the pages of our exchanges, and no doubt will prove of service by suggesting some line of treatment that otherwise might be overlooked:

## Diarrhea in Infants:

Bismuth Salicylate.....	24 grn.
Gum Acacia.....	1 dr.
White Sugar .....	90 grn.
Water.....	to make 6 fl. oz.

One or two teaspoonfuls three to six times a day. Keep on ice.

—MIKHREVICH, *Month. Cyclop. Pract. Med.*

## Acute Gastro-Enteritis:

Bismuth Subnitrate...	4 dr.
Salol.....	1 dr.
Paregoric,	
Tinct. Ginger .....	of each 3 fl. dr.
Chalk Mixture.....	to make 3 fl. oz.

Two teaspoonfuls every three hours until the stools are formed and then one teaspoonful thrice daily.

—HERWISCH, *Phil. Polyclinic.*

## Infantile Diarrhea:

Tannalbin.....	1 dr.
Calomel.....	1 grn.
Sugar.....	1 dr.

Mix six powders and give one every two hours. For children of 2 years and upward give double this dose.

—KOLZER, *Jahr. f. Kinderheil.*

## Diarrhea:

Tinct. Opium.....	2 fl. dr.
Tinct. Rhubarb.....	2 fl. dr.
Oil Sassafras.....	2 drops
Comp. Tinct. Catechu.....	4 fl. dr.
Comp. Tinct. Lavender.....	to make 2 fl. oz.

Teaspoonful every three hours.

—LOOMIS, *Med. Record.*

Infantile Diarrhea :

Creolin.....2 or 3 drops  
Cinnamon Water..... 3 fl. oz.  
Syrup..... 1 fl. oz.  
A teaspoonful every hour.  
—*Louisville Med. Monthly.*

Intestinal Catarrh :

Tinct. Iron Chloride ..... 2 fl. dr.  
Tinct. Catechu..... 3 fl. dr.  
Paregoric..... 4 fl. dr.  
Fluid Extract Arom. Rhubarb. 2 fl. dr.  
Brandy ..... 2 fl. oz.  
Simple Syrup ..... 8 fl. oz.  
One-half to one teaspoonful every 4 to 6 hours  
for a child 1 or 2 years old.  
—*Hall, Buffalo Med. Jour.*

Acute Diarrhea :

Sodium Bicarbonate..... 1 dr.  
Aromatic Spirit Ammonia..... 3 fl. dr.  
Comp. Tinc. Cardamom ..... 6 fl. dr.  
Cinnamon Water..... 6 fl. dr.  
Two tablespoonfuls every two or three hours.  
—*Yeo, Phil. Med. Jour.*

Enteritis of Children :

Tannin..... 10 grn.  
Lactic Acid..... 30 min.  
Simple Syrup..... 1 fl. oz.  
Distilled Water..... 2 fl. oz.  
Teaspoonful before each meal.  
—*Variot, Med. Record.*

Diarrhea :

Zinc Sulphocarbolate,  
Bismuth Subgallate,  
Prepared Chalk .....of each 1 dr.  
Make into 36 powders and give ½ to 2 powders,  
according to age, every two or three hours.  
—*Pons, Medical Summary.*

Intestinal Catarrh :

Salol..... 30 grn.  
Creosote ..... 10 min.  
Bismuth Salicylate..... 1 dr.  
Make 20 capsules and give one every three  
hours.  
—*Anders, Pract. Med.*

Diarrhea :

Paregoric..... 2 fl. oz.  
Ext. Witch-Hazel..... 1 fl. oz.  
Carbolic Acid..... 1 dr.  
Fluid Extract Kino..... 2 fl. dr.  
Tinct. Jamaica Ginger..... 2 fl. dr.  
Precipitated Chalk..... 1 oz.  
Simple Syrup.....to make 8 fl. oz.  
Shake the bottle and give a teaspoonful to  
adults every three hours. For children reduce  
quantity in proportion to age.  
—*Greenley, Med. Standard.*

Diarrhea of Adults :

Prepared Chalk ..... 2 dr.  
Tinct. Catechu..... 4 fl. dr.  
Laudanum..... 30 min.  
Cinnamon Water..... 8 fl. oz.  
Two tablespoonfuls after each stool.  
—*Fothergill, Dom. Med. Month.*

Diarr'ea Mixture :

Spirit Camphor..... 1 fl. dr.  
Tinct. Capsicum ..... 30 min.  
Comp. Tinct. Lavender..... 1 fl. oz.  
Brandy .....to make 2 fl. oz.  
Teaspoonful every 2 or three hours.  
—*North Carolina Med. Jour.*

Dysentery :

Magnesium Sulphate ..... 1 oz.  
Tinct. Aconite..... 4 min.  
Morphine Muriate..... ½ grn.  
Spirit Camphor ..... 10 min.  
Water ..... 3 fl. oz.  
Dessertspoonful every two hours until charac-  
ter of stools changes, then at longer intervals.  
—*Medical Fortnightly.*

Cholera Morbus :

Carbolic Acid..... 8 grn.  
Glycerin..... 5 fl. dr.  
Paregoric..... 2 fl. oz.  
Cinnamon Water..... 3 fl. oz.  
One teaspoonful after each movement for an  
adult.  
—*Medical News.*

**Dr. J. L. Van Zandt**, of Fort Worth, Texas, writes and says: "I have lately used, with much satisfaction, in a case of threatened miscarriage, half-grain doses of Dionin, which checked the pains very satisfactorily, without causing nausea. Both morphine sulphate and McMunn's Elixir caused uncontrollable vomiting, and codeine seemed to have no effect. The morphine was given hypodermically, the other remedies by the bowels."

**Ergot** is recommended as almost a specific in pneumonia by Dr. I. M. George,<sup>1</sup> of Eldorado, Ark., who claims that, during the past ten years, he has lost only two cases, both following measles, in which he has used it. His method of administration is to give a large initial dose to bring the patient promptly under the influence of the drug, and then to keep him there by means of smaller doses. Cases thus treated, the only other medication being a calomel purge, are said to be practically free from pain and to reach the crisis within from three to seven days.

<sup>1</sup>*Jour. of Prac. Med.*, XI, p. 147.

# COLLECTIVE INVESTIGATION

*Under this head will be published the experiences had by clinicians and practitioners with new or old remedies of unusual interest by whomever made*

## DORMIOL

### A HYPNOTIC

#### Introductory

IN his search for a hypnotic which would embody all the valuable features presented by chloral hydrate but be free from the serious drawbacks of the latter, Dr. G. Fuchs<sup>1</sup> was led to prepare a compound of chloral and amylene hydrate. Experiments carried out with this new preparation demonstrated such efficiency that the author felt constrained to bring it to the attention of the medical profession.

The new compound, to which the name dormiol has been given, is chemically dimethylethylcarbinol-chloral or amylene-chloral, and has the formula  $\text{CCl}_3\text{C}(\text{OH})_2\text{-(CH}_3)_2\text{C}(\text{C}_2\text{H}_5)_2$ . It occurs as a colorless fluid, of penetrating, mentholic odor, and cooling, burning taste. Its specific gravity at 15° C. is 1.24, and it boils without decomposition under normal pressure as well as *in vacuo*. With alcohol, ether, acetone, chloroform, benzene, and fatty and ethereal oils it is miscible in every proportion. On shaking with water it forms a milky fluid which, on standing, separates into two layers—water and dormiol. On allowing layers of equal volumes of water and dormiol to remain undisturbed for some time, a gradual amalgamation takes place, the two combining to form an intermediate layer; and finally a perfect mixture of the two results in the formation of a clear solution. On adding 4 to 5 volumes of water to this, the dormiol is thrown out of solution, unchanged. On shaking for a short time, however, a perfect and permanent union again results.

Dr. Fuchs, in connection with Dr. E. Koch,<sup>2</sup> carried out a large number of com-

parative tests on animals, which demonstrated not only the superiority, but also the innocuousness of dormiol as compared with chloral hydrate and other hypnotics such as sulfonal, trional, paraldehyde, and amylene hydrate.

These tests have since been confirmed by a number of clinical investigators, who unanimously affirm that patients who took dormiol never experienced any bad effects from it, but, on the contrary, felt well and bright. The digestive apparatus does not appear to be deleteriously influenced by dormiol: on the contrary, some observers have found it to be improved by the remedy.

So far as the promptness of its hypnotic effect is concerned, this is vouched for by a number of clinicians, one of whom has found dormiol to produce sleep in the insane within one-half to one hour, in 75 per cent. of the cases in males and in 80 per cent. in females; while another reports having had success in 84 per cent. of sane patients treated with it.

Owing to the fact that dormiol is best administered in diluted form, it is marketed only in 10% aqueous solution, which is at once convenient to dispense and pleasant to take.

#### Clinical Reports

Dr. E. Meltzer, Physician to the Royal Sanatorium and Hospital at Colditz, Saxony,<sup>3</sup> has employed dormiol as a hypnotic for the insane. He generally employed a simple 10-per-cent. solution in water, with or without any corrigent. He states that "doses of 0.5 Gm. (6 min.) of dormiol sufficed to afford nervous or infirm and aged subjects, even under conditions of

<sup>1</sup>*Zeitschr. f. angew. Chem.*, 1899, No. 49.

<sup>2</sup>*Münch. med. Wochenschr.*, 1898, No. 37, p. 1173.

<sup>3</sup>*Deut. med. Wochenschr.*, 1899, No. 13, p. 298.



psychical excitement, a quiet, dreamless sleep lasting several hours. This class of patients bore doses of 1 to 2 Gm. (12 to 24 min.) without exhibiting any symptoms of intoxication other than sleep. I have very carefully examined the pulse, respiration and temperature in many patients, before the administration of the remedy, during the maximum period of action, and after the disappearance of all action, and have found no notable differences from those ordinarily observed between sleeping and waking. I have also been assured by patients whom I could depend upon, that they felt no disagreeable by-effects of any kind after doses of 2 Gm. (24 min.), but that they felt very much refreshed both in head and limbs. Good results were also obtained with doses of 2 or 3 Gm. in cases where the insomnia was due to mild and medium types of protracted psychical excitement (it was of no service only in cases of extreme excitement) particularly in paralytics, in which other remedies are also ineffective. As in the case of chloral hydrate, the daily dose may be fixed at 6 Gm. (72 min.). I never observed any cumulative effect."

The author also at times gave dormiol during the day, in order to test its hypnotic power: but found it to act, like other hypnotics, best at night. In general success was obtained in 75 per cent. of the cases in males and 80 per cent. in females, comprising the most restless patients, including the paralytics, who, as already stated, are less responsive to hypnotics and sedatives, and who thus lower the percentage, which would be much higher if no mentally affected, excited subjects were included. "From the foregoing, it is justifiable to recognize dormiol as a good hypnotic, being approached most closely in action by chloral hydrate, and which in doses of from 0.5 to 3 Gm. is able to produce sleep promptly and without consequent by-effects, even in insane patients with more or less marked excitation."

Dr. Peters,<sup>1</sup> of the Luisenhospital, at Aachen, reports the results obtained from

the use of dormiol in 45 cases, comprising 20 of nervous diseases of both functional and nervous character, 3 pulmonary, 1 cardiac, 1 intestinal, 5 renal, 2 hepatic, 1 peritoneal, 2 of the genital organs, 5 of the muscles and bones, 1 of the blood, 2 of chronic intoxication, and in 2 cases of convalescence from infectious diseases. Among the functionally neurotic were a number of obstinate cases of insomnia that had existed for a long time. The cases of organic nervous diseases were hemiplegia, encephalopathia saturnina, Basedow's disease, and tabes dorsalis. In the pulmonary diseases, there was insomnia with advanced phthisis.

The remedy was invariably taken by the patients without objection, mostly in the form of the 10-per-cent. aqueous solution, with milk. The taste was never complained of, nor did unpleasant by-effects at any time supervene; neither could any untoward action on the heart, kidneys (even in a case of nephritis), bladder, etc. be observed. Among 7 of the 45 cases no special action was obtained, but in these 1 Gm. (15 grn.) of trional and 4 to 6 Gm. (80 to 120 min.) of amylene hydrate also had no uniform hypnotic action. The results obtained in these cases with doses of 2 Gm. (24 min.) of dormiol were equal to those obtained with other hypnotics. In 84 per cent. of the cases the sleep caused was more or less profound. While the results were in most instances only palliative, yet a number of cases were beneficially influenced to the extent that satisfactory sleep was obtained after the dormiol had been suspended.

Particularly good results are reported to have been obtained in the insomnia due to functional neuroses, in which comparatively small doses of dormiol (up to 1 Gm.) were very effective. With a few exceptions, the remedy was also found useful in cerebral and spinal organic diseases. In a case of paralysis agitans wherein insomnia followed the slightest excitement, dormiol in doses of 0.5 Gm. (6 min.) rapidly afforded sleep. In a case of encephalopathia saturnina, doses of 1.5 Gm. (18 min.) were required; but these produced deep, long-continued sleep. Similarly good results were obtained with doses of 1 Gm. in Basedow's disease,

<sup>1</sup>*Munch. med. Wochenschr.*, 1900, No. 14.

and with 0.5 Gm. doses in *tabes dorsalis*. The results were satisfactory also in diseases of other organs, e. g. the heart, lungs, stomach, intestines, liver, kidneys, etc. It was remarkable that in chronic nephritis, with uremic symptoms, the insomnia was successfully combated by doses of 0.5 to 1 Gm. (6 to 12 min.). In advanced pulmonary phthisis the results were poor, due to the cough-irritation.

As a beginning dose, 0.5 to 1 Gm. of dormiol was usually found to be sufficient, and the hypnotic action was found to develop in one-half to one hour. It was rarely necessary to resort to 2-Gm. doses, and no necessity was found for still higher doses. Habituation to the remedy, as ordinarily in the case with other hypnotics, was never observed with dormiol. Taken altogether, the author gained the conviction that "dormiol may be recommended, because it is easy to take, has no pernicious effects in doses of 0.5 to 2 Gm., and is at the very least equally as effective as paraldehyde, amylene hydrate, and trional."

Dr. Ernst Schultze,<sup>5</sup> of the Royal County Sanitarium and Hospital of Andernach, reports having administered over 1000 doses of dormiol in more than 60 cases; and from the experience gained, he recommends the remedy as a serviceable and certain hypnotic in the mentally affected. "Its action in the great majority of cases developed within from one-half to one hour after taking the dormiol, and the sleep lasted from 5 to 8 hours on an average, and sometimes longer." Efficient results were secured in 75 per cent. of the cases treated. In cases of recent mania, and in the very excited condition of paralysis, dormiol is generally of but very little use, as is the case with other hypnotics. Among epileptics, also, the remedy is not as effective as it was at first hoped it would be. The best, in fact almost absolutely certain results, were obtained in many cases of melancholia, depression, and hypochondria. The doses administered were usually 1.5 Gm. (18 min.); in certain cases, however, double this quantity was necessary, yet more than 3 Gm. was never required. It appeared, too, that when such

a dose is ineffective, the remedy will always fail. In many cases, however, doses of 0.75 to 1 Gm. (9 to 12 min.) sufficed.

"No unpleasant or even questionable by-effects, or any untoward action on the respiration or circulation, have ever been observed, except perhaps in the case of a hypochondriac who now and then complained of pains in the knees and slight headache. The majority of the patients voluntarily stated that they felt very well after having taken the dormiol, and many reported having greatly enjoyed their breakfast—which would seem to show that the remedy does not impair the appetite as other hypnotics so often do. Many patients, too, who had been addicted to the use of various hypnotics for years, and were thus competent to judge, were unanimous in stating that dormiol is not only more readily taken than chloral hydrate, but that it disturbs the general condition on the day following far less, and permits of mental work."

Habituation to the remedy and consequent decrease in its effect was never observed. The action of dormiol was compared with that of other hypnotics, such as trional, and it was found that dormiol afforded results in cases where trional did not.

Dormiol has also been tried as a sedative in doses of 0.5 Gm. (6 min.) twice or three times daily, but with rather unsatisfactory results.

In view of his experience, the author recommends dormiol as "a useful and quite reliable hypnotic for the mentally affected, excluding recent mania and paralysis with severe excitement;" and he is convinced that "it will soon be recognized as a serviceable hypnotic also in other cases than those of lunacy."

Prof. Königshöfer,<sup>6</sup> of Stuttgart, says that he has used dormiol in a number of cases of insomnia due to psychical excitement before and after operations, as well as in hysterical and neurasthenic patients; and is able to confirm the statements made by Schultze, Meltzer, and Peters regarding the absence of any unpleasant by-effects, and

<sup>5</sup>*Neurol. Centralbl.*, 1900, No. 6.

<sup>6</sup>*Die ophthalm. Klin.*, 1900, No. 9.

the perfect innocuousness of the remedy, in doses of 0.5 to 1 Gm. "Sleep set in rapidly after taking the remedy, and on waking, the patients felt refreshed. Its narcotic action fails only in cases where there is pain due to organic causes."

Dr. J. Moir,<sup>7</sup> of Edinburgh, after a *résumé* of the literature on dormiol, relates that, being attracted by the facts enumerated therein, he was induced to give dormiol a trial in three forms: full strength, 10-per-cent. dilution (dose 70 to 140 min.), and in capsules containing 0.5 Gm. (6 min.). He used the dormiol in cases of rheumatic fever, nervous depression, enteric fever, influenza, and alcoholism. After relating in detail his experience in five cases, he says: "From these cases I have come to the conclusion that dormiol may be relied upon as a hypnotic where other remedies might be likely to fail or considered otherwise unsuitable. In each case, except where the capsules were used, I gave the medicine plentifully diluted with water as a 2-oz. draught. This is advisable, as then it has only a pleasant, camphor-like taste. I never observed any bad symptoms at any time, the dormiol acting as a pure hypnotic and producing no other effect whatever, either on pulse or temperature."

#### Administration of Dormiol

The following formulas have been employed by the authors of the foregoing reports:

Dormiol, 10% Solut. .... 3½ fl. oz.  
Syrup Raspberry ..... to make 4 fl. oz.  
One to two tablespoonfuls at bedtime.

Dormiol, 10% Solut. .... 3 fl. oz.  
Extract Licorice ..... 1 dr.  
Syrup ..... to make 4 fl. oz.  
Shake before using. Tablespoonful at bedtime.

**Digitoxin**, in spite of the testimony of numerous observers that it is the most efficient active principle of digitalis, has failed to become popular for the reason, as assumed by Dr. E. Zeltner,<sup>1</sup> assistant to Penzoldt, of Erlangen, that the usually recommended methods of administration, by rec-

tum or hypodermically, are objectionable, especially in private practice. At the suggestion of his chief, the doctor has made a series of experiments with digitoxin in cases of valvular heart disease, emphysema of the lungs and nephritis with cardiac insufficiency. The patients selected had, on previous occasions, been treated with infusion of digitalis, so that the effects of the crude drug were well known in each case. The method of administration adopted was by mouth, one tablet, containing  $\frac{1}{4}$  Mg. ( $\frac{1}{250}$  grn.) of digitoxin, three times daily after meals. The remedy was continued until compensation was effected or symptoms of poisoning manifested themselves. Altogether, forty-one experiments were made, with three complete failures, but in two of these latter cases there was high fever, and the other was equally refractory to digitalis infusion. The effects of the digitoxin were very similar to those of the infusion, being first observable in a subsidence of the dyspnea and cyanosis with simultaneous improvement of the pulse as to rate and rhythm; following the restoration of a good pulse, there was large and rapid increase of urine and corresponding decrease of edema. In a few cases, decided cumulative effects were observed, but the same cases remained under the influence of the drug for unusually long periods after its discontinuance. In no case was serious poisoning observed, and it is considered avoidable by the exercise of care and prudence. Disturbances of the stomach were infrequent and, when occurring, generally slight and temporary. This relatively favorable result, as compared with the experiences of others who have given the remedy by mouth, is emphatically ascribed to the fact that the time prescribed for the dose was invariably after meals. The general conclusion reached by the author is that digitoxin is about one thousand times the strength of powdered digitalis and produces practically identical effects with the latter in most cases, but that certain exceptions to this rule demonstrate that there is an unexplained difference of action, so that sometimes one, and sometimes the other is to be preferred.

<sup>7</sup> *Med. Press and Circ.*, 1900, XIX, p. 573.

<sup>1</sup> *Munch. med. Woch.*, XLVII, p. 886.



# Book Notices

ANOTHER illustration of the specialism which is becoming more and more characteristic of medical practice is the increasing number of small manuals written on the co-operative plan. MEDICAL AND SURGICAL NURSING is a book of this sort, and consists of a series of contributions by physicians and surgeons engaged in teaching medical students and nurses, on the subjects in which they are most interested. The volume is edited by Dr. H. J. O'Brien, of Hamline University, who contributes, in addition, the chapters on the nursing of "Fractures, Dislocations, and Wounds," and on the "Infant and Child." The list of fourteen authors includes the names of men well known in their chosen fields of work, and that of Mrs. Mary B. James, who has written a valuable chapter on "Cooking for the Sick." The manual will prove useful not only to the ambitious nurse who will glean from its pages many valuable hints on the care of special diseases, but also to the careful practitioner who realizes the necessity of that minute attention to details which contributes in no less degree than the skillful use of drugs to his success. In the eminence of its authors, the excellence of its material, and the painstaking skill of its publishers, the book has a triple guarantee of success. (New York: G. P. Putnam's Sons, 12mo. 287 pages. Price, \$1.50.)

PART IV of the *LEHRBUCH DER HISTOLOGIE UND DER MIKROSCOPISCHEN ANATOMIE*, by Dr. Ladislaus Szymonowicz, which has just been issued, sustains by its excellence in every way the favorable opinions which parts I to III lead one to entertain. The present section deals with the pancreas, liver, peritoneum, pulmonary organs, kidneys, sexual organs, and placenta. Many of the plates are unusually fine, being beautifully colored, and the text is liberally illustrated. The entire work is to be completed in five parts, the text of which is to be illustrated with 169 original cuts, and 81 plates, 52 of which will be in colors. When complete, the *Lehrbuch* should be invaluable to the student of histology and microscopical anatomy. The publisher of the work is A. Stuber (C. Kabitzsch), Würzburg. (Price, each part, 3 marks.)

THE ESSENTIALS OF MEDICAL CHEMISTRY, the fourth edition of which has just made its appearance, is designed by its author, Samuel E. Woody, A.M., M.D., as a combined brief text book and laboratory guide. Dr. Woody brings to his task a long experience in laboratory teaching and a full appreciation of the needs of the medical student. The book abounds in illustrative experiments which the author has found in practice to be most serviceable, and which at the

same time are simple and require for their performance only the most elementary apparatus. These experiments are illustrated in the text and explained more fully in footnotes. The fourth edition has been largely re-written, and much new matter added, especially to Part III, which deals with clinical chemistry. It is a deservedly popular text-book, calculated to give the student a thorough grounding in the fundamental principles of medical chemistry. (Philadelphia: P. Blakiston's Son & Co., 1012 Walnut St. 240 pages. Price, \$1.50.)

PART IV of *DIE ROHSTOFFE DES PFLANZENREICHS*, by Dr. Julius Wiesner, has just been issued, and in it the generally high excellence exhibited by parts I to III is fully maintained. This part continues with the exposition of the general history and chemistry of the vegetable fats, and takes up also the vegetable waxes and camphor, starch, and yeast. The subject of starch is in particular very exhaustively treated, about 80 pages being devoted to it. General thoroughness is assured throughout by the collaboration of noted scientists, each of whom has revised or written upon the subject upon which he is authoritative. The details of the work are excellently carried out, and, when complete (in 10 parts) a volume will result which will reflect great credit upon the author and publishers, and be indispensable to every working chemist in organic chemistry. (Leipzig: Wilhelm Engelmann. Price, each part, 5 marks.)

## Publications Received.

METHODS AND RESULTS IN 450 CASES OF FRACTURE OF THE FOREARM BONES. By Charles A. Powers, M.D., of Denver, Colo.

METHODS AND RESULTS IN 175 CASES OF SIMPLE FRACTURE OF THE FEMUR. By Charles A. Powers, M.D., of Denver, Colo. Reprinted from *The Colorado Medical Journal*, June, 1899.

WOUND OF THE URINARY TRACT DURING AN OPERATION FOR ACUTE APPENDICITIS—SPONTANEOUS CLOSURE OF URINARY FISTULA—RECOVERY. By Charles A. Powers, M.D., of Denver, Colo. Reprinted from the *Transactions of the American Surgical Association*, 1899.

CONICAL STUMP AFTER AMPUTATION IN CHILDHOOD. By Charles A. Powers, M.D., of Denver, Colo. Reprinted from *Annals of Surgery*, April, 1900.

BULLETIN OF THE LABORATORY OF MOUNT HOPE RETREAT, Baltimore, containing reports on the Secretions in the Insanities; Indol; and the Pathology of Epilepsy. By Drs. Richardson and Hill.

ANNUAL REPORT OF THE MOUNT HOPE RETREAT, for the year 1899. By Charles G. Hill, A.M., M.D.

# MERCK'S ARCHIVES

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### The Effect of Poisons in Small Doses

IN spite of the progress of knowledge in the domain of toxicology, there seems to be a lingering determination on the part of some members of the medical profession to cling to the early, crude notions of pre-scientific times regarding the absoluteness of the poisonous properties of toxic agents. In common with the laity, they seem to hold that poisons are poisons in all and every proportion, however administered. Why they thus bid defiance to their own experience it would be difficult to surmise. Confront them with the problem in its bold form as here outlined and they would probably deny entertaining such an idea; but whenever they undertake to solve for themselves some problem that deals with poisons in exceedingly minute amounts they seem naturally to gravitate into the old and superstitious notion. The medical advisers of Health Boards and of State Dairy Commissioners should be careful of this trend, but we regret to notice that there have been instances where they have not been sufficiently on the alert regarding it. So-called reformers are often swayed in their conclusions by the same false notions. In every such instance they lose sight of that fundamental fact of physiology which

declares that a stimulated cell, tissue, or organ is toned and strengthened by the stimulation, providing it is not excessive. It is the going beyond the point of physiological stimulation that does harm. Destructive agents and stimulating agents are the same. They only differ in degree. This is why electricity, heat, cold, massage, and exercise are beneficial. All of these up to a certain point of their action bring benefit to the system, but as soon as that point is transcended damage results. Apply a strong enough current of electricity and it will kill. While it is impossible for us to live without a certain degree of heat, yet an excess of it would destroy us. Use cold enough, and the life would be frozen out, but during hot weather a little is quite agreeable. Let the masseur use undue violence in the exercise of his art, and instead of benefiting he would harm or kill his patient. Exercise within physiological limits is beneficial, but as soon as such limits are transcended harm results, and if carried too far, death will be the inevitable end. According to the French savant, M. Paul Bert, if the oxygen of the air, without which we can not live a minute, is administered pure and under pressure, it is more

fatal than an equal weight of prussic acid. There is no line of demarcation between beneficial stimulation and destructive activity. They merge into each other by inappreciable degrees. Losing sight of this fact has led the ultra-temperate to assail harmless indulgence of certain habits with harmful overindulgence. They do not attempt to discriminate between the two extremes. Some of them go so far that they condemn the use of tea and coffee as injurious. One class of such reformers even assail the use of salt upon our food. Quite a large party of them denounce the use of tobacco as a deadly poison, destructive to health and reason. In defiance of all their claims stands the fact that the average tobacco user seems to live long and appears to be as healthy as the non-users of the "weed." That nicotine, the active principle of tobacco, is a poison, and a most virulent one at that, no one can successfully deny. That it is poisonous in small amounts may be safely questioned in the presence of human experience with it. The fact is that this, like every other substance and force by which we are surrounded, is either destructive, harmful, harmless, or even beneficial, according to the quantity used and how it is used. It is the method of giving and not the thing given that brings disaster to the user. Everything we eat and drink can bring us harm or act as a poison, in accordance with the amount used and the way it is used. There are no absolute poisons, and the conception that certain things are poisons *per se* is only worthy of the unscientific age in which it was born. Like tobacco, alcohol has been denounced as a poison in all and every proportion in which it can be used. There is certainly no known fact of science to bear out any such conclusion. Prof. Atwater has shown that in sufficiently small amounts it is oxidized in the body, and thus imparts energy to the organism. Perhaps this may prove to be true of every organic substance known. It is not at all unlikely that this is the case.

However, this result of Atwater's experiments but shows that there is no fixed line of demarcation between poisonous and non-poisonous substances. Another fact that bears out this contention is that the system always shows a marked ability to adapt itself to poisons slowly and gradually ingested in small amounts. Amounts of morphine that even transcend the limits of mere stimulation can be endured in gradually increasing proportions. Alcohol up to the point of cell irritation can be endured, and the amount of such endurance is a gradually growing one. Bacteriologists have shown us that immunity to disease is mainly due to an acquired tolerance toward the poisons generated by the germs of disease. Immunity to inorganic poisons seems to be more difficult to acquire than to the organic, but even these we can become accustomed to, so that they can be borne in slowly increasing amounts with impunity. In view of such facts as these, is it not strange that there should be so determined a crusade against a few quite harmless bactericidal substances that have been used as protective agents against the germs in perishable articles of food? These same people that encourage this crusade eat peaches, cherries, almonds, plums, thereby taking into their systems small quantities of deadly prussic acid, and fear no evil. Food preservatives are far less dangerous than this and many other things found in natural food. Multitudes consume for years tons of food protected with food preservatives without harm, but the logic of fact is lost upon the would-be reformers. To be consistent these people should forbid breathing because large, concentrated doses of oxygen kill. They should forbid fires in houses because intense heat kills. They should prohibit the practice of massage because violence not infrequently kills, or the drinking of ice-water because intense cold is apt to prove fatal. They should even stop eating, because excess of food is injurious.



# A Comparative Study of Digitalis and Its Derivatives\*

By JOHN P. ARNOLD, Ph.G., M.D., and HORATIO C. WOOD, Jr., M.D.

THE conflicting results obtained by investigators of the derivatives of digitalis, the differences of opinion which exist among clinicians as to their therapeutic value, and the importance of determining whether any of them represent the activity of digitalis, have led the writers to undertake this research. We believe that we have found certain definite causes for the diversity of results, and that we shall be able in this paper to make some of the apparently conflicting opinions agree as to the action of these substances.

The original purpose of this paper was merely to determine the therapeutic value of digitalin, but our studies revealed so much ignorance and confusion concerning the action of the drugs belonging to the digitalis group that it seemed almost impossible to limit our investigations so narrowly. In this paper we desire to call attention to some experiments on the value of German digitalin and digitoxin compared to the tincture of digitalis, at the same time pointing out some facts concerning their effects on the circulation. In a future paper we hope to publish the results of investigation of some of the other principles of digitalis.

It is necessary, before taking up the subject proper of this research, to consider briefly the relations of the so-called active principles of digitalis to each other. The recognized proximate principles found in digitalis are digitalin, digitaleïn, digitonin, digitin, and digitoxin. The first four are glucosides. Digitoxin, according to Schmiedeberg,<sup>1</sup> is not a glucoside, but by other authors is stated to yield glucose.

All of these—except digitoxin, which belongs to the saponin group, and digitin, which is inert—have a very similar influence on the circulation.

As to the three active products mentioned, unfortunately, much confusion exists. For example, the name digitalin has

been applied to an amorphous product which is soluble in water, to another substance which exists in porous masses or fine scales and is insoluble in water but soluble in alcohol, and to a third body which is crystallizable and soluble in alcohol. The most important of the substances offered by various investigators as representing the activity of digitalis are digitalinum Germanicum, digitalin cristallisée of Nativelle, digitalin of Homolle and Quevenne, digitalin of Kaliani, digitaleïn and digitoxin of Schmiedeberg.

It seems probable from the literature that the digitalin of Homolle and Quevenne is an impure form of digitalin cristallisée, which seems to be identical with digitoxin, and that digitalinum verum of Kiliani is the digitaleïn of Schmiedeberg. According to Schmiedeberg, digitalinum Germanicum is a mixture consisting largely of digitaleïn. It has also been stated that digitalinum Germanicum contains digitoxin. This statement seems to us extremely improbable, as digitoxin is almost entirely insoluble in water, while German digitalin dissolves readily in water. If digitoxin is present in digitalin as such, we do not see how it is possible for the mixture to dissolve completely in water unless there be present some unknown solvent in digitalin.

A plausible explanation of the discrepancies in the results of chemical investigations is that these substances, known to undergo chemical changes with comparative ease, may be altered by the manipulations required to separate them.

Viewed from the standpoint of its physiological action, we believe the digitalinum Germanicum furnished by Merck to be a uniform product and stable in its composition. In regard to its stability, we may say here that we obtained identical results with some which had been in the laboratory more than two years and that sent to us direct from the manufacturer in sealed containers.

\*Reprinted from *Amer. Jour. Med. Sciences*, CXX, No. 2, p. 165.

The most important practical question is whether any of these substances represent the therapeutic activity of digitalis. It seems useless to continue with the apparently endless discussion as to their chemical relations.

#### GENERAL ACTION ON THE CIRCULATION

Our studies of the blood-pressure were mostly made on dogs, the drugs being given intravenously. The results obtained were so uniform that it will only be necessary to give the details of a few experiments which may be considered as representing very fairly the general results of our work.

*Tincture of Digitalis* administered to a dog weighing 16.8 kilos (37 lb.) in doses of 1 Cc. to 2 Cc. (16 to 32 min.) produced the following results (see Table I): After 2 Cc. (32 min.) had been given the blood-pressure rose from 136 Mm. to 154 Mm., and the pulse rate decreased from 210 to 114. After 2 Cc. more the rate was 65. The pulse waves were enormous in size (16 Mm.) and the blood-pressure rose to 190 Mm. Suddenly, after this condition had persisted for one minute, the pulse rate increased to 228 and the pressure fell to 148 Mm. The pulse waves were very small. This condition of rapid pulse continued after further dosage, and the pressure remained about the same. The only change observed was that the pulse became somewhat irregular. After the final dose the heart suddenly ceased beating, and upon rapidly opening the thorax was found in diastole. The right ventricle responded to stimulus, but the left did not.

That the change in the pulse rate was due to vagal influence will be shown by Experiment II, in which 0.02 Gm. ( $\frac{1}{3}$  grn.) of atropine sulphate caused an immediate increase in the rate of the heart beats from 42 to 198 per minute, with an accompanying rise of pressure. In this experiment as the rate of the pulse increased the size of the individual waves diminished, remaining, however, always larger than the normal. A further injection of 2 Cc. (32 min.) of digitalis caused a fall of pressure to 124 Mm., while the rate remained 198. After a final dose of 3 Cc. (48 min.) the

heart almost at once ceased beating, and immediately afterward was found in diastole and non-irritable.

*Digitalin* administered to a dog weighing 8.4 kilos (18½ lb.), in doses of from 0.02 Gm. to 0.04 Gm. ( $\frac{1}{3}$  to  $\frac{2}{3}$  grn.) caused (see Table III) after a dose of 0.04 Gm. ( $\frac{2}{3}$  grn.) a rise of blood-pressure from 114 Mm. to 120 Mm., and a reduction of rate from 108 to 87. After another dose of 0.02 Gm. ( $\frac{1}{3}$  grn.) the rate was 63 and the pressure 140 Mm. The pulse waves were large and occasionally dicrotic. After 0.04 Gm. ( $\frac{2}{3}$  grn.) more had been given, the pressure was 144 Mm. and the rate 84. Suddenly, without any preliminary alteration in rate or pressure, the rate rose to 126 and the pressure to 159 Mm., the pulse waves becoming much smaller and somewhat irregular. Very shortly after 0.04 Gm. ( $\frac{2}{3}$  grn.) more had been given the heart stopped and was found in diastole, and did not respond to stimulation. (See Table XI.)

*Digitoxin* (see Table IX) given to a dog weighing 9.2 kilos (20¼ lb.) produced, after administering 0.12 Gm., a rise of pressure from 146 Mm. to 166 Mm., and a decrease in rate from 162 to 156. The administration of 0.12 Gm. (2 grn.) more reduced blood-pressure to 126 Mm. and the rate to 90. Another dose of 0.04 Gm. ( $\frac{2}{3}$  grn.) reduced the rate to 84, while the pressure rose to 172 Mm. Very suddenly, and nearly a minute after 0.08 Gm. (1¼ grn.) more had been given, the pressure rose to 192 and the rate to 186. Forty seconds later the heart suddenly ceased beating, and was found in diastole, and responded very feebly to stimulus.

Quite commonly immediately after an injection of digitoxin had been given a marked fall of pressure was observed, but as the drug was given in alcoholic solution and the condition lasted only for a few seconds, we attribute the effect to the presence of the alcohol. It is possible that the irritant action of digitoxin may be partly responsible for this effect.

It will be readily seen from the foregoing statements that there is little, if any, difference in the general action of these three

drugs on the circulation. In each there is seen a rise in the pressure preceding a slowing of the pulse. As a rule, the pressure remained high during the period of slow heart-action, although in one experiment with digitalis it fell 6 Mm. (see Table II). After larger doses the rate of the heart became very slow, the pulse waves very large, and during this period sometimes quite a marked fall of pressure occurred (see Table II); but, on the other hand, it might be elevated. Pulse waves were sometimes dicrotic. With surprising suddenness there followed an enormous increase in the rate of the heart, often with a marked and precipitous rise of pressure (see Table X). Sometimes, however, for some reason this increase in the rate of the heart did not elevate the pressure, an indication that perhaps the muscle was weakened coincidentally with the pneumogastric. The pulse remained regular for a period, usually later becoming markedly irregular. If more of the drug was administered the heart almost at once ceased to beat, and was found in diastole and practically non-irritable.

Let us now consider the causes of the effects obtained. The slowing of the heart is undoubtedly due to stimulation of the cardio-inhibitory mechanism, limited chiefly to the peripheral part of this apparatus, as it is not prevented by previous section of the vagi (see Table VIII), and is prevented or abolished by atropine (see Tables II, VI). In this statement we are supported by Brunton,<sup>2</sup> H. C. Wood,<sup>3</sup> Butler,<sup>4</sup> and Cawarjee,<sup>7</sup> and Cushny.<sup>5</sup> Francois Franck states that the slowing of the rate is not due to action on the vagus, but we are unable to see in what manner he has arrived at his conclusions. We feel that our own evidence on this point is quite conclusive. L. Traube<sup>6</sup> states that, after section of the vagi, soluble digitalin in warm-blooded animals was, with rare exceptions, incapable of reducing the pulse rate. We found, to the contrary, that slowing occurred in all our experiments under these conditions. That the slowing is partly due to stimulation of the vagus center is shown in Table VII, by the increased rate produced by sec-

tion of the pneumogastrics after slowing had been brought about by digitalin. This view is upheld by Brunton. Boehm<sup>13</sup> states that atropine is powerless to affect the digitalis pulse-rate in frogs; we have not experimented on these animals, but have proven that the statement is not true of the dog.

The rise in blood-pressure is partly due to increased cardiac power, but seems to us more to a constriction of the blood paths. Reference in support of this statement may here be made to H. C. Wood, Biddle, Butler, Hale White,<sup>9</sup> Ringer, and Sainsbury,<sup>10</sup> Brunton, Donaldson, and Stevens,<sup>11</sup> and others. We cannot agree with the opinion of Ackerman<sup>12</sup> that the rise of pressure is entirely of cardiac origin. Although there is no doubt that the individual beat is much stronger than normal, nevertheless the pulse is so much slowed that we doubt if the heart does a greater amount of work, which conclusion agrees with the results of Donaldson and Stevens and of Klug.<sup>8</sup>

In accord with this, we sometimes found a distinct fall in the pressure, doubtless to be explained by the slowing of the pulse, the drug failing for some reason to produce consentaneous increase in the muscle power. At no time did we observe a fall which could be attributed with certainty to depression of the vasomotor mechanism. The sudden rise of pressure with great increase in the pulse rate in the later stages of the poisoning is undoubtedly due to paralysis of the cardio-inhibitory apparatus, as stimulation of the vagus at this time does not produce the usual slowing of pulse-rate (see Table XI).

As will be shown hereafter, the final sudden cessation of the heart's action is due to a direct paralyzant action on the heart muscle, and not to excessive vagus stimulation. It is not prevented by previous paralysis of the inhibitory mechanism by atropine, and, as has been stated above, paralysis of the vagi was uniformly observed in the later stages of the poisoning.

#### HEART

It is the common custom to study the cardiac effects of drugs on the isolated



heart of the frog, and digitalis with its various principles forms no exception to this rule. But the value of such investigations we think is much overestimated, and that it is a mistake to draw too positive conclusions concerning their action on the human economy from such evidence. The contradiction between our results and the common teaching concerning this group of drugs first led us to doubt the reliability of experiments on the batrachian heart, and we think a careful review of the work of various investigators in this field will convince any one, as it has us, that a method which leads to results so diverse must contain some serious error. There are many theoretical objections which can be urged against this mode of experimentation, and it is not at all necessary to assume any inherent difference between the muscle-fiber of the heart of warm and cold-blooded animals, although it seems not at all improbable that such difference does exist.

As has been pointed out by Masi,<sup>14</sup> in his studies with digitalin, the temperature of the organ plays an important rôle in its susceptibility and manner of response to poisons. Masi showed that the frog's heart, which ordinarily is arrested in systole by digitalin, would, when warmed to 32° C., stop in diastole, and that, conversely, the mouse's heart, if cooled, remained in systolic spasm after poisoning by the drug. Furthermore, the other conditions under which the isolated frog heart is laboring are so widely different from those of the mammalian heart *in situ* that one might well be surprised that the results should be at all similar. Donaldson and Stevens called attention fifteen years ago to the effect which the high pressure on the venous side of the artificial circulation has on the work of the heart, and by using methods more nearly approaching the normal conditions achieved results quite different from those of previous observers. It is not necessary to go into all the circumstances in detail that can affect the action of drugs on the heart, for no more convincing argument of the faultiness of such methods can be put forward than the widely varying conclusions that different observers have reached.

The one fact on which all investigators seemed agreed is that ordinarily the isolated frog's heart is arrested in systole by the substances under consideration. According to Dybkowsky and Pelican (quoted by Boehm), this is true only of the ventricle, the auricles stopping in diastole. Boehm<sup>15</sup> found that moderate doses of digitalin sometimes caused the frog's heart, when not separated from the central nervous system, to cease beating in diastole from excessive inhibitory stimulation. The systolic spasm has been found by Klug to follow digitoxin also.

Our few experiments on the frog's heart were made with digitalin and digitoxin, to see if any difference in their action from digitalis could be here detected, rather than to determine their pharmacological properties. We used the isolated ventricle of the frog's heart with Kronecker's apparatus. For a nutrient fluid a mixture of one part of blood and nine parts of salt solution (0.7 per cent.) was employed.

A digitalin solution of one-quarter per mille was in all cases sufficient to send the heart into tetanic contraction; indeed, one-eighth per mille was in most cases strong enough. In a heart which was beating spontaneously one-quarter per mille solution produced a condition in which the ventricle relaxed slowly, but as the next contraction began immediately after the relaxation of the previous one, there was no distinct slowing of the cardiac rate. At no time could any marked change in the rate be demonstrated, nor was there any increase in the force apparent, the pulse wave remaining the same height until imperfect diastole lessened it. In the heart stimulated by electricity a very similar state of affairs was observed, with, however, one additional feature of interest. There occurred a stage where, if the impulses were sent at short intervals (60 per minute), the heart would pass into the systolic spasm, but would slowly relax on interruption of the current; if the excitations were separated by a wide enough interval of time the heart would contract and relax perfectly, albeit very slowly. No qualitative difference in the action of digitoxin was detected.

*Mammalian Heart.*—Attention has already been called to the fact that the heart of the warm-blooded animal does not react to these poisons in the same manner as does that of the cold-blooded, and we may now call attention to some of the points of difference. In review of the effects of digitalis on the general circulation we have already mentioned the fact that on opening the chest we invariably have found the heart in diastole. This condition has already been too often described to need any further discussion were it not that Franck denies the truth of it. This investigator affirms that the belief that the heart stops in diastole is due to imperfect methods of observation, and claims to have shown with other methods that it really ceases beating in a state of contraction. He explains the failure of previous experiments to reach the same conclusion by the assertion that this systolic spasm is of very short duration, and that before the chest can be opened the heart has relaxed with fibrillation. After careful study by the method to be described immediately, we are unable to agree with Franck, and feel ourselves justified in the statement that in the majority of cases the heart is arrested in diastole. In Experiment III the termination was such as to allow of a dispute concerning the meaning of the phrase "stop in systole." It is hardly proper, in our opinion, to speak of a heart having ceased to beat when it remains in the same state of contraction for only a fraction of a second; of course, its last contraction must have brought it into the position of systole, and when systole was done it ceased contracting, but by the same argument it might be shown that the heart always "stops in systole."

Our opinion concerning the death of the heart is based on our cardiac and blood-pressure curves, and on careful studies made to ascertain especially this point by direct observation in the following manner: The jugular vein having been exposed and a canula placed in it, tracheotomy was done and artificial respiration established. The chest was then opened on the median line with especial care to prevent hemorrhage as much as possible; the chest walls were then

separated and held apart by chain hooks. The movements of the heart were studied by the eye and finger, and note made both of what we felt and what we saw. As we both saw exactly the same things, and as the phenomena were of a nature so unmistakable, we think equal or even greater confidence may be placed in it than in any graphic method.

In a dog weighing 7 kilos., 5 Cc. of the tincture of digitalis caused the cardiac beats to become slower and more forcible. An additional 5 Cc. brought about only an increase in these effects. After 3 Cc. more the diastolic pauses were very long, and then with most striking suddenness the heart began to beat with extreme rapidity. At first the contractions were regular and moderately full, but later, systolic impulse continually growing relatively stronger than the diastolic, the movements became more and more rapid, until finally by imperceptible gradations they were no more than inco-ordinate fibrillary contractions, and the organ relaxed, still showing after relaxation in a typical form the "flimmerbewegung" described by Kronecker.<sup>15</sup>

It is very easy to conceive that if one were trusting to a graphic method the excessively rapid and minute contractions at the instant when the heart began to fibrillate might easily be overlooked and the heart supposed to be remaining still in systole at this time.

Parallel experiments were done with digitalin and digitoxin, but did not reveal any distinct difference between them and digitalis. Results, in tabulated form:

EXPERIMENT II.—Digitalin. Dog, weight 6 kilos. (13 lbs.)

- 8.51 Thorax opened.
- 8.52 Heart irregular and weak, 76 per minute.
- 8.54 Injection 0.10 Gm. digitalin.
- 8.55 Heart stronger and more regular, 72 per minute.
- 8.56 Heart 212 per minute, systole hard, diastole imperfect.
- 8.56½ Heart beating excessively rapid.
- 8.57 Heart fibrillating, stops in diastole, non-irritable.

EXPERIMENT III.—Digitoxin. Dog, weight 4.7 kilos. (10½ lbs.)

- 9.19 Thorax opened.
- 9.20 Heart fairly strong, 168 per minute.
- 9.21 Injection of 0.01 digitoxin.
- 9.21½ Occasional diastolic pauses.
- 9.22 Heart shows a tendency to beat in groups of two, 72 beats per minute.
- 9.23 Heart 52 per minute.
- 9.25 Left auricle 176 per minute, left ventricle 72 per minute.
- 9.25½ —Auricle and ventricle in accord 200 per minute; systole is hard and diastole imperfect.
- 9.27 Heart very rapid, counted 264 per minute.
- 9.27½ Left ventricle stops and immediately relaxes.
- 9.27.50" Right ventricle stops and immediately relaxes.
- Right ventricle responds to stimulus, left does not; no fibrillating in either.

Overwhelmingly large doses of these drugs seem to paralyze the heart muscle directly without inhibitory paralysis, and very promptly, as is shown by the following experiment:

EXPERIMENT IV.—Digitalin. Dog, weight 3.8 kilos.  
(8½ lbs.)

12.05	Thorax opened.
12.06	Heart 186 per minute.
12.06½	Inject 0.10 Gm. digitalin.
12.07	Heart 42 per minute.
12.09	Inject 0.10 Gm. digitalin.
12.09½	Heart stops in diastole; no fibrillation.

More elaborate studies of the effect of digitalis on the mammalian heart were made with the method described by J. Bock.<sup>16</sup> The method did not yield in our hands quite so satisfactory results as those that its originator seems to have obtained, but has points which make it a method of some value. As practised by us, Bock's method is as follows: The trachea is exposed in the ordinary manner and a respiratory canula inserted. The pectoralis major and sternomastoid muscles are then separated from their sternal attachments. A suture is placed around the sternum on a level with the first rib, and the tip of the bone above the ligature is cut away with bone forceps, exposing the subclavian arteries, which are ligated. Tension is made on the ligature attached to the sternum, and with the left subclavian as a guide, careful dissection is made down to the aorta, around which a ligature is placed, but not tied. A large canula is then inserted into one jugular vein low down. Artificial respiration is now begun, and one carotid connected with a manometer. The other carotid is connected with a series of glass tubes representing the peripheral vessels. These tubes are filled with leech extract and supplied from a reservoir with a dilute solution of the same. Immediately before ligating the aorta, which is the final step in the operation, an intravenous injection of leech extract, made so that one leech head is given for each kilo. (2½ lb.) body-weight, is given in order to prevent coagulation of the blood. As a test of the thoroughness of the ligation of the aorta we used the femoral pulses, which, of course, are absent if the vessel is entirely occluded.

Bock states that under such conditions cardio stimulants cause a rise of pressure in

the manometer, and mentions the digitalis-like poison, helleboreine, as causing such a rise. We ourselves never obtained any such elevation of the pressure by digitalis, but are inclined to attribute our failure to faulty technique rather than to lack of power of the drugs.

The first effect of digitalin and digitalis was to cause a slowing of the pulse. In Experiment XI, with digitalis, as section of the vagi caused an increase in the pulse rate, it is evident that the centers in the medulla were not absolutely dead; probably one of the subclavians was insecurely tied. Simultaneously with the decreased rate an increased force of the pulse is to be noted. This increase in the pulse-wave varied always parallel to the slowing, and might be well due to the inhibitory stimulation. In Experiment XI the same course of events as described in the blood-pressure curves is seen, namely, the sudden increase in the rate of the heart due to inhibitory paralysis (as is shown by the powerlessness of the electric current to inhibit the cardiac action).

In Experiment XII we have, however, a very different termination. The heart, instead of becoming very rapid, becomes very slow and full. This condition was entirely independent of any inhibitory influence, because it was not affected by atropine. The exact signification of this experiment we are unable to determine: the most plausible explanation we have to offer is that under the drug the muscle was increased in its extensibility (see Donaldson and Stevens), undergoing a sort of dilatation with little loss of power. At the same time the irritability of the muscle was depressed so that an ordinary degree of intracardiac pressure was unavailing to excite, and the heart refused to respond until overdilated with blood, while the capability for contraction was unaffected. Experiment III, in which we found the auricles beating two or three times as fast as the ventricles, may have some interest in this connection, although, of course, in that case the heart was under the influence of pneumogastric stimulation.

DOSAGE. From the foregoing account of our experiments it is seen that both digi-



talín and digitoxin are circulatory stimulants of considerable power, resembling closely, if not identical with, digitalis tincture in their pharmacological activities. Nevertheless, neither of them has achieved such clinical results as to gain the full confidence of the profession, the general verdict being that digitalin is "uncertain" in its action. It is hard to see why an active principle representing, as this one seems to, the full therapeutic virtue of a drug, should be less uniform in its results than the cruder preparation. And it is to our minds equally as improbable that a substance should affect so powerfully and certainly the circulatory system of a dog and not that of man. In this connection it may be remembered that some years ago the tincture of digitalis was dubbed "uncertain," but since we have learned to give it in equivalent dose it has proven itself equal to the infusion in efficiency. We think the same mistake concerning digitalin is hindering the profession from the use of a valuable remedy. Ordinarily the dose is stated to be 0.001 to 0.002 Gm. (1-60 to 1-30 grn.), and the clinician blames the drug for failing to act. Several years ago Dr. Beates<sup>22</sup> quite startled some of the more conservative practitioners of medicine by advising them to give digitalin in half-grain (0.03 Gm.) doses, and telling of excellent results achieved in this way. Dr. Beates' doses agree so closely with those that we have arrived at by reasoning from our experiments that it seems surprising no one else has before this confirmed his statements.

From the appended tables it will be seen that the smallest amount of the drug which caused any distinct symptoms of poisoning was 3.5 Mg. (1-20 grn.) per kilo. (2 1-5 lb.), while in no case did less than 7.5 Mg. ( $\frac{1}{8}$  grn.) prove fatal. If we estimate the weight of a man at 70 kilos (154 pounds), it would require to cause any toxic manifestations 0.245 Gm.\* Moreover, it is to be remembered that these amounts were injected intravenously, and consequently reached the vital centers in a much greater concentration than if the remedy had been taken by the mouth. The doses given in our tables agree closely with those of

Boehm, and are somewhat smaller than those of Bardet.

DIGITALIN						
Experi'm't	Weight of Dog	Toxic Amount	Fatal Amount	Toxic Amount per Kilo.	Fatal Amount per Kilo.	Remarks
	Kilos	Gm.	Gm.	Gm.	Gm.	
Exper. III.	5.5	0.04	0.080	0.0073	0.0146	
" VIII.	8.4	0.04	0.18	0.0048	0.0214	
	8.0	0.04	0.06	0.0050	0.0075	Vagi div'd
" VI.	12.3	....	0.16	....	0.0130	Atropini'd
" II.	17.0	0.06	0.22	0.0035	0.0139	Atropini'd
	6.0	....	0.10	....	0.0167	
DIGITOXIN						
Table X..	11.5	0.016	0.028	0.0014	0.0024	
" IX..	9.2	0.012	0.036	0.0013	0.0039	
	5.0	0.010	0.020	0.0020	0.0040	Atropini'd
Exper. II..	4.7	....	0.010	....	0.0021	

There are, however, several objections which may be argued against conclusions arrived at in such a manner. In the first place, of course, we do not wish to poison our patient. To this we would say that the amount given (0.25 Gm.=4 grn.) represents the physiological limit for the dog. Two objections which are more valid are the well-known cumulative action of digitalis and the difference in susceptibility of the human and canine organisms. The most rational procedure to determine the therapeutic dose under these circumstances seems to us to be to compare its relative power to such a well-known preparation as the tincture of digitalis. The lethal dose for a dog of this tincture may be put at about 1 Cc. (16 min.) per kilo. (see Tables I and II), and the toxic dose at about 0.3 Cc. (5 min.) per kilo. (2 $\frac{1}{2}$  lb.) body-weight. The average fatal dose of digitalin for the dog was in our experiments 0.0145 Gm. ( $\frac{1}{4}$  grn.) per kilo. of body-weight, and the toxic dose 0.0051 Gm. ( $\frac{1}{2}$  grn.). These figures will be seen to agree very closely with those of the tincture in the relation between poisons and fatal doses. We may safely state, then, that 0.015 Gm. ( $\frac{1}{4}$  grn.) of digitalin about equals 1 Cc. (16 min.) of tincture of digitalis, representing 0.15 Gm. (2 $\frac{1}{4}$  grn.) of the leaves. We hope in a future paper to report clinical confirmation of these doses.

As for digitoxin, Koppe<sup>17</sup> gives the fatal dose as 1.5 Mg. ( $\frac{1}{40}$  grn.) per kilo (2 $\frac{1}{2}$  lb.) and Franck<sup>21</sup> as 2.3 Mg. ( $\frac{1}{8}$  grn.) per kilo. In our experiments the average fatal dose was 3.1 Mg. (1-20 grn.) per kilo.

\* Fall in the pulse rate of ten beats per minute was regarded as a toxic manifestation.

\* Approximately, 3 $\frac{1}{2}$  grains.

By averaging all these results and reasoning as above, we would obtain 0.0023 Gm. ( $\frac{1}{216}$  grn.) as the therapeutic dose for a man. Koppe, however, poisoned himself quite severely with a single dose of 0.002 Gm. ( $\frac{1}{32}$  grn.), although 0.001 Gm. ( $\frac{1}{64}$  grn.) had no effect on him three days previously. Wenzel,<sup>18</sup> von Starck,<sup>19</sup> and Masius<sup>20</sup> all report good effects from digitoxin in doses of 0.25 to 0.75 Mg. ( $\frac{1}{250}$  to  $\frac{1}{85}$  grn.) several times a day. The irritant properties, however, of this drug render it less fit for human medication on account of the liability to upset the stomach if given per os, or to cause abscesses if given hypodermatically. Another objection to its use is its insolubility, which renders it irregularly absorbed and slowly eliminated, and hence very liable to accumulate in the system or to act with varying degrees of power.

#### CONCLUSIONS

1. Digitalin and digitoxin each represent the full circulatory powers of digitalis.

2. Digitalis, digitalin, and digitoxin stimulate the cardio-inhibitory mechanism both centrally and peripherally. In large doses they paralyze the intrinsic cardio-inhibitory apparatus.

3. They all cause a rise of blood-pressure by stimulating the heart and constricting the blood vessels.

4. Very large doses paralyze the heart muscle of the mammal, the organ stopping in diastole.

5. Digitalin of Merck is a stable compound, one Gm. of it being equivalent to about 70 Cc. (18 dr.) tincture of digitalis.

6. Digitoxin is not to be recommended for human medication on account of its irritant action, which makes it liable to upset the stomach when given by the mouth or to cause abscesses when given hypodermatically, and on account of its insolubility, which renders it slowly absorbed and irregularly eliminated, having a marked tendency to cumulative action.

TABLE I.—Tincture Digitalis. Dog, weight 16.3 kilos. (37 lbs.)

Time	Press.	Pulse
Begin'g	136	210
0' 25" }	...	...
1' 30" }	144	216
1' 25" }	...	...
1' 30" }	...	...

Time	Press.	Pulse
2' 10" }	156	210
3' 30" }	174	246
4' 10" }	154	114
5' 40" }	146	234
6' 0" }	...	...
6' 5" }	...	...
6' 40" }	156	102
7' 40" }	...	...
7' 45" }	...	...
8' 20" }	190	65
9' 20" }	148	228
9' 30" }	...	...
9' 35" }	...	...
10' 5" }	...	...
10' 10" }	...	...
10' 50" }	...	...
11' 30" }	...	...
11' 35" }	...	...
12' 10" }	150	246
13' 30" }	...	...
13' 40" }	...	...
14' 10" }	...	...
14' 40" }	148	222
15' 10" }	...	...
15' 20" }	...	...
15' 30" }	...	...

Total dose, 16 Cc. (4 dr.) tincture.

TABLE II.—Tincture Digitalis. Dog, 9.8 kilos. (21½ lbs.)

Time	Press.	Pulse
Begin'g	122	198
1' 20" }	...	...
1' 30" }	...	...
2' 0" }	116	114
2' 10" }	...	...
2' 15" }	...	...
3' 0" }	122	108
3' 50" }	...	...
4' 0" }	...	...
5' 0" }	84	42
6' 0" }	...	...
6' 10" }	...	...
6' 30" }	160	198
6' 40" }	...	...
6' 50" }	...	...
7' 10" }	124	198
7' 40" }	...	...
7' 50" }	...	...
7' 55" }	...	...

Total dose, 10 Cc. (2½ dr.).

TABLE III.—Digitalin. Dog, weight 8.4 kilos. (18½ lbs.)

Time	Press.	Pulse
Begin'g	114	108
✓ 30" - 50" }	...	...
1' 0" }	120	87
1' 20" - 1' 30" }	...	...
1' 35" }	140	63
2' 15" - 30" }	...	...
3' 0" - 15" }	...	...
3' 30" }	144	84
4' 15" }	159	126
4' 20" - 30" }	...	...
5' 0" }	...	...
5' 20" }	150	166
9' 0" }	156	190
9' 15" - 30" }	...	...
9' 30" }	...	...

Total digitalin, 0.18 Gm. (3 grn.)

TABLE VI.—Digitalin and Atropine. Dog, weight 17 kilos. (37 lbs.)

Time	Press.	Pulse
Begin'g	142	96
0' 5" }	...	...
1' 10" }	...	...
1' 40" }	136	150
1' 45" }	...	...
2' 05" }	...	...
2' 55" }	168	162
4' 0" }	...	...
4' 20" }	96	162
4' 50" }	...	...
5' 15" }	...	...
6' 20" }	190	192
6' 25" }	...	...
6' 45" }	159	...

Time	Press.	Pulse	
Begin'g			
7 10	224	204	Inject 0.04 Gm. digitalin.
7 15	...	...	
7 40	...	...	Heart stops. Chest opened; heart in diastole; does not respond to stimulus. Respiratory movements persist after cardiac arrest.

Total digitalin, 0.22 Gm. (3½ grn.)

TABLE VII.—Digitalin. Dog, weight 9.5 kilos. (21 lbs.)			
Time	Press.	Pulse	
Begin'g	80	84	
0' 10"-20	...	...	Inject 0.02 Gm. digitalin.
1 20	104	69	
4 30-40	...	...	Inject 0.04 Gm. digitalin.
5 0	122	72	
5 25	...	...	Both vagi divided.
5 30	153	120	Experiment ended.

TABLE VIII.—Digitalin. Dog, weight 8 kilos. (17½ lbs.)			
Time	Press.	Pulse	
Begin'g	167	174	Both vagi have been divided.
0' 10"-20	...	...	Injection of 0.04 Gm. digitalin.
1 0	200	90	
2 40	140	186	Pulse waves small.
7 0	210	240	
8 0-10	...	...	Injection 0.02 digitalin.
9 20	...	...	Heart stopped. Chest opened; heart in diastole, right side irritable, left not. Respiratory movements continued after heart had ceased.

TABLE IX.—Digitoxin. Alcoholic Solution. Dog, weight 9.2 kilos. (20½ lbs.)

Time	Press.	Pulse	
Begin'g	146	162	
0' 45"-58"	...	...	
1 10	156	180	Inject 0.004 Gm. digitoxin.
1 30-1 40	...	...	
2 20	160	150	Inject 8 Mg. digitoxin.
2 30-2 35	...	...	
3 10	150	90	Inject 8 Mg. digitoxin.
3 20-3 25	...	...	
4 0	126	90	Inject 4 Mg. digitoxin.
4 10-4 15	...	...	
4 50-5 0	...	...	
5 30	172	84	Inject 4 Mg. digitoxin.
0 10	192	186	Inject 8 Mg. digitoxin.
6 50	...	...	Pressure fell to 0 rapidly; heart stopped.
7 0	...	...	Vagi cut; no effect. Heart in diastole; responds feebly to stimulus. Massage causes weak beats for a few seconds.

Total dose, 0.036 Gm. (½ grn.)

TABLE X.—Digitoxin. Dog, weight 11.5 kilos. (25 lbs.) Chlorotone anesthesia.

Time	Press.	Pulse	
Begin'g	130	192	
0' 5"	...	...	Inject 0.002 Gm. digitoxin alcoholic solution.
0 45	142	192	
1 0	...	...	Inject 0.002 Gm. digitoxin solution.
1 30	150	190	
2 10	...	...	Inject 0.004 Gm. digitoxin.
2 50	172	190	
3 0	...	...	Inject 0.004 Gm. digitoxin.
4 10	...	...	Inject 0.004 Gm. digitoxin.
4 40	174	180	Pulse waves slightly larger.
5 20-40	...	...	Inject 0.008 Gm. digitoxin.
6 0	176	162	
7 30	136	120	Deep inspirations.
8 20	120	60	
8 40	220	252	
9 10	...	...	Inject 0.004 Gm. digitoxin.
9 30	...	...	Heart stops. Chest opened; heart found in diastole, responding feebly to stimulus.

Total amount digitoxin, 0.028 Gm. (½ grn.). Per kilo. 0.0035 (½ grn.).

TABLE XI.—Bock's Method. Tincture of Digitalis. Dog.

Time	Pulse	Rate of Pulse	Height of Pulse	
Begin'g	126	18		
0' 10"-30	...	...	...	Inject 1 Cc. tincture digitalis.
1 30	114	18-24		
2 0	126	17		
3 5-5 15	...	...	...	Inject 1 Cc. tincture digitalis.
9 15	114	17		
13 0	...	...	...	Inject 2 Cc. tincture digitalis.
14 0	99	23		
14 30-40	...	...	...	Inject 2 Cc. tincture digitalis.
15 20	84	31		Occasional diastolic pauses.
16 30	...	...	...	Two vagi successively cut.
17 30	...	...	...	
17 35	111	20		
18 30	...	...	...	Inject 1 Cc. digitalis.
19 30	156	8-14		
19 35	...	...	...	Inject 1 Cc. tincture digitalis.
20 0	163	7		Systole hard, diastole incomplete.
23 0	162	13		Electrical stimulation of vagus without effect.

TABLE XII.—Bock's Method. Digitalin Germanicum. Dog, weight 7.1 kilos. (15½ lbs.)

Time	Pulse	Rate of Pulse	Height of Pulse	
Begin'g	123	14		
0' 10"	...	...	...	Inject 0.004 Gm. digitalin solution.
1 10	...	...	...	Periodically occur'g vagus pulses.
2 10	96	20-22		It was here found that the aorta was not securely ligated.
3 30	...	...	...	
7 0	114	25		
8 30	...	...	...	Inject 0.002 Gm. digitalin.
9 0	114	26		
12 0	...	...	...	Inject 0.004 Gm. digitalin.
12 45	...	...	...	
13 15	126	19		
22 0	108	17		
22 10	...	...	...	Inject 0.004 Gm. digitalin.
22 15	...	...	...	
23 0	...	...	...	Inject 4 Mg. digitalin.
23 20	...	...	...	Inject 4 Mg. digitalin.
24 0-15	...	...	...	Inject 4 Mg. digitalin.
25 0	...	...	...	Inject 4 Mg. digitalin.
25 15	...	...	...	
25 35	105	22		
25 40-55	...	...	...	Inject 4 Mg. digitalin.
26 25	72	24-32		Long diastole pauses.
26 40	...	...	...	Heart stops for twenty seconds.
27 20	10	52		
28 0	...	...	...	0.005 Gm. atropine sulphate without effect.
34 0	...	...	...	Heart stops in diastole; responds to irritation.

TABLE XIII.—Bock's Method. Digitalin. Dog, weight 9.6 kilos. (21 lbs.)

Time	Pulse	Rate of Pulse	Height of Pulse	
Begin'g	102	30-40		
0' 10"	...	...	...	Inject 0.004 Gm. digitalin.
1 30	...	...	...	Inject 0.004 Gm. digitalin.
2 30	84	46-64		
3 30	...	...	...	Inject 0.004 Gm. digitalin.
5 0	...	...	...	Inject 0.016 Gm. digitalin in four doses.
7 20	72	36-54		Experiment ended.

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## Asthma:

Ammonium Iodide.....	2 dr.
Ammonium Bromide.....	3 dr.
Tinct. Lobelia.....	5 fl. dr.
Syrup Tolu.....	6 fl. oz.
Teaspoonful as required.	

—FOTHERGILL, *Jour. Med. and Surg.*



# Treatment of Morphinism

By CHARLES J. DOUGLAS, M.D.,

Physician in Charge of the Walter Baker Sanitarium, Boston, Mass.

MORPHINISM, in the modern sense of the term, is a comparatively new disease. While the opium habit has long cursed China, and the drug has been used in this country for many years, yet the disease never reached large proportions in America until after the invention of the hypodermic needle about forty years ago. Since then the use of morphine has steadily increased until now this drug addiction has reached alarming proportions. Of all the drugs that enslave, morphine is the unapproachable chief. Its bondage is more exacting and the suffering it causes more severe than that produced by the habitual use of any other drug. Many alcoholic habitués have periods of total abstinence, but a morphomaniac has no such periods of relief. It is a perpetual bondage, and as soon as the influence of the drug upon the system subsides, the patient is thrown into a state of poignant suffering. When its habitual use is continued for a sufficient length of time, it not only undermines the constitution, but in many cases produces a deterioration in the mental and moral natures. This frequently reaches a point where the patient largely loses the sense of moral responsibility, and the tendency to falsify is particularly marked. One of my morphine patients, who had become very fond of me, once confessed that when I asked him questions, he had an almost irrepressible desire to falsify. This was a gentleman naturally possessed of a high moral character.

The blame of this widespread disease lies, I regret to say, largely at the door of the medical profession. While morphine is a valuable remedy in the hands of a judicious physician, it is one of those dangerous remedies whose use should never be entrusted to the patient or his non-professional friends; in fact, in prescribing this drug the patient should be kept in ignorance of its character. Handing the remedy

to the patient with the remark "Here is some morphine; take it when you feel the need of it," is a proceeding little less than criminal. As between the habitual use of morphine by the stomach and hypodermically, the latter is to be preferred if one must choose between evils. Opium eaters usually have digestive ailments that do not affect the users of the needle.

Plans for treating morphinism may be divided into two classes, first, the sudden withdrawal, and second, the gradual withdrawal of the drug. The sudden withdrawal method is the most simple one and the easiest for the attendants to carry out, saving them both time and trouble. It consists simply in taking the drug away from the patient and locking him up until he is free from all craving for morphine—provided he does not die meanwhile as a result of the awful agony produced. This method is not only cruel, but it is fiendish in its barbarity, and endangers the life of the patient. A recent writer in describing this method advises that "the room in which the patient is undergoing the sudden withdrawal method should contain no moveable furniture or any utensils that can be broken. All kinds of smaller furniture or vessels are strictly to be removed, as they may become dangerous weapons in the hands of the excited patient. Especially must knives, scissors, etc., be kept away. Above all, it is important that the part of the hospital where the patient is treated shall be separated from all other apartments and wards, so that the other patients will not be disturbed by the maniacal cries and noise of the morphine victim."<sup>1</sup> This reads almost like a description of a mediæval torture chamber. As morphinism can be thoroughly and permanently cured without subjecting the patient to such suffering, the cruelty of the above-described method becomes apparent.

<sup>1</sup>Condensed translation.

The gradual reduction method is the one that I have employed with success for many years. While it requires longer time, and more patience and work on the part of the attendants and physician, yet it accomplishes a cure without the great suffering and delirium of the other method. It is at once humane and effective. I begin by giving the patient his usual quantity of morphine for a few days, during which time I study his peculiarities, and he in turn gets acquainted with our sanitarium methods, and recovers from the nervousness and fear with which one usually enters a sanitarium. I always administer the morphine hypodermically, regardless of the method of administration habitually employed by the patient. In a few days I begin very gradually to reduce the size of the dose, vigorously administering tonics and such other remedies as the symptoms indicate. Particular pains should be taken to insure sleep at night. This I consider of the most vital importance. Another important indication is the maintenance of a fair appetite. A third essential is the prevention of suffering. Here, then, we have the essential trinity of indications in the cure of morphinism, (1) sleep, (2) nourishment, (3) freedom from suffering. To promote sleep, all the sedatives of our materia medica must be at the command of the physician,

particularly that prince of hypnotics, apomorphine, the use of which for this purpose I have explained in a previous issue of MERCK'S ARCHIVES. The appetite is maintained meanwhile by the use of bitter tonics, of which cinchona is a good example. Freedom from suffering is maintained first, by the very gradual withdrawal of the morphine, and second, by the use of substitutes. These substitutes must be selected to suit the individual peculiarities of each case. A very excellent plan is to rely exclusively upon dionin, substituting it for morphine very early in the treatment, and gradually reducing it in the same way as if it were morphine. The dose, however, of dionin should be considerably larger than morphine to produce the same results; my practice is to give about twice as large a dose of this remedy as I have been giving of morphine. Patients notice the withdrawal of dionin much less than the withdrawal of morphine, and I have found it eminently satisfactory in every respect. When the drug has been entirely withdrawn, so that the patient can be comfortable without it, I consider him about half cured. From that time on the object of the physician must be to build up the patient's health and vitality. Everything should be employed that will tend to restore him to his normal condition.

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[Written for MERCK'S ARCHIVES]

## The Limitations of Ergot

By F. A. SEYMOUR, A.M., M.D., Los Angeles, Cal.

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THE physiological action of this much abused drug is to stimulate the vaso-motor nerve centers. Its attack upon unstriated muscular fibers produces contraction of the blood vessels, with a resultant rise of arterial pressure. It is true there may be a slowing of the heart beat; but this is toxic, and is quite evidently associated with a depressant action of the drug, which in over-doses substitutes the stimulating effect, and from which there may possibly be no rebound.

With perhaps the single exception of uterine hemorrhage, the arrest of non-

traumatic bleeding is to be effected most generally, if at all, by the induction of vaso-motor paresis. The employment of vaso-motor excitants for the purpose of cutting off the blood supply might possibly be rational, could their action be restricted to the territory involved. Uterine hemorrhage, the most common of all blood losses, without due consideration has been made a type of all bleeding. And inasmuch as it usually yields to treatment by ergot, the indiscriminate use of this drug in other hemorrhages has followed.

It is quite within bounds to say that

ergot is more frequently given for the arrest of hemorrhage in the cavities, from whatsoever cause save trauma, than any and every other remedy. Yet it is on record that a persistent case of bleeding from the cervical canal that had resisted ergot and surgical means as well, on further investigation yielded promptly to the administration of potassium iodide.

Another case coming under our observation was a patient approaching the climacteric. Various surgical measures having been used, including two curettings, with ergot pushed to the physiological limit, all of which had failed (the condition being associated with headache), the hemorrhage yielded promptly on the employment of gelsemium—a vaso-motor paralyzant—combined with one of the coal-tar products.

Attention of late has been called to the fact that in some cases of uterine hemorrhage in middle life the cause is evidently

arterio-sclerosis, a condition quite beyond the influence of the vaso-motor nerves, and manifestly to be made worse by the furrows of the curette.

While using ergot in the treatment of uterine fibroid, we have seen it induce a most persistent diarrhea, doubtless by its influence on the peristaltic muscles. Yet it is often given for the control of intestinal hemorrhage. A protective clot stands a poor chance of adhesion under its gripe.

More perilous still is the employment of this drug in cerebral or pulmonary bleeding. While the cerebral vessels have no vaso-motor nerves, yet by induced constriction elsewhere, the blood-pressure within the cranium may be disastrously intensified. In pulmonary hemorrhage the increased vascular tension occasioned by physiological doses of ergot unquestionably aggravates the condition, and it should never be used.

[Prize paper in literary contest of MERCK'S ARCHIVES]

## Some Medical Philosophy

By W. C. COOPER, M.D., Cleves, Ohio

### PART I

**A**LTHOUGH my title is not specific with reference to a remedy or disease, I am sure the burden of my paper will be adjudged to fall within the scope and intent contemplated by the management of this magazine. This will result from the fact that my arguments and conclusions bear very directly upon the use of a large class of drugs, and the treatment of a great number of diseases. Particularly it will result from a recognition of the primary and comprehensive purpose of these editors, which is, namely: To clarify the therapeutic atmosphere. It is pertinent to state here that incidentally I shall discuss the management of three or four diseases, but not with that exhaustiveness which would be expected in a paper devoted wholly to the consideration of one disease. I shall submit, and discuss, a series of propositions which are axiomatic, except that two of them have been held to be debatable by a few writers.

1. *It is better to do nothing than to do the wrong thing.* The ready self-evidence of this makes it an axiom. To go a step further and say, it is better to do nothing than to do a doubtful thing may be all right ethically, but its application to therapeutics would wreck nearly the entire fabric, while it would wholly arrest further medical progress. Any disabling significance inhering in the fact that the physician almost never knows he is giving exactly the right drug has always been, and always will be, overridden by the assertiveness of evolutionary stress. Comprehended in this pressure are instinctive adjustments of moral phases dependent upon the relation of the physician to his patient, and of both to experimentation. Questions growing out of these relationships have been tossed on the controversial horns of casuists times without number, but the primal push toward a drug therapy could not be balked. The develop-



ment, at last, of drug certitudes—as quinine in morbid periodicity—constitutes a practical argument for experimentation which no abstract logic can shake. The promise of benefit to the race, as a result of experimentation, holds more of good, it is felt, than experiment does of evil. Therefore, to cautiously give a drug experimentally is legitimate. To give a drug which we *know* to be the wrong one is conscious malpractice. It will be seen that (in medicine) to do a doubtful thing, i. e., to draw lots, as it were, in the patient's behalf, is not to do a wrong thing; whence, expectancy is not better than doubtful (if cautious) medication.

2. *No morbid effect can be dissipated except by a removal of its cause.* This is universally accepted in the abstract by physicians, and about as universally contradicted by them in their practice. To attempt to supply a lack in the system—always the *result* of an assimilative fault—by giving the lacking substance is to deny the truth of this axiom. This is done every day by practically *all* drug-giving physicians of whatever school. To give iron in anemia, and lime in rickets, is classically justified.

To the superficial thinker, the axiom is easily demolished. One medicus illustrated its unreliability with this knock-out argument: "If a horse kick a man in the belly the effect—*inflammation*—remains, although the cause—the horse's hoofs—was removed instantly." It is not more than pardonable for me to explain here that all that constituted the kick—a mode of energy—was left with the man. New conditions translated the energy involved in the kick into that involved in the inflammation. We know, of course, that our physical organisms are perfect, and self-sufficient in themselves. No disease is primarily intrinsic to them. Heredity itself is extraneous to its physical identity, and the same is true of the cause of prenatal malformations, etc. "Auto-infection" is a popular word these days, but it does not express a truth. Auto-infection means self-transcension, which is impossible. The cavity of the stomach, lumen of the bowels, etc., are a part of one's environment. In all disease, the initial energy is, or was, in the patient's environment.

3. *What will tend to make a well man sick will tend to make a sick man sicker.* Although we instinctively and instantly apprehend the truth of this, it is qualified by a question which does not, on the moment, dictate its own answer. The question grows out of the proposition that enough of any drug will tend to make a well man sick. Thus the axiom seems to utterly bar the use of any drug. The truth of the axiom is apparent enough with reference to everything excepting the use of drugs. For the reason that the axiom appears to contradict the use of drugs, many a drug doctor has denied its truth; while for the same reason, the non-drug doctor points to it triumphantly as proving his position. Neither of them has gotten down far enough below the surface. Now it is plain enough that the wrong drug will make the sick man sicker. This is necessarily true because if it does not make him sicker, it is not the wrong drug, but is partly or wholly the right drug. If the wrong drug will tend to make the sick man sicker, it will tend to make the well man sick. This is essentially sequential to analogical coherency. The truth of this stands out boldly in the enunciation that *any* drug is the *wrong* drug for the well man. But anyway, it is a consequence of nature's self-consistency that nothing can change the *quality* of vital responsiveness. It is seen then that the proposition *is* an axiom. The violation of this axiom constitutes the most common and devastating abuse known to therapeutics—*hypermedication*. This is the direct result of young enthusiasm or old unwisdom. This, too, makes it true that, from the viewpoint of averages, the medical profession is not an unmingled blessing to the world. Note, however, that this is also true of the legal profession and of the ministry. These professions "come high, but we must have 'em." We must have them because we must have civilization, which they partly create, and by which they are partly created.

4. *Under proper dosage, a drug's capacity for doing good when indicated is exactly equal to its capacity for doing harm when not indicated.* This is a consequence of the balancing reciprocity subsisting between

equally opposing forces. However, the proposition is too rigid, for drugs are double-edged. Aconite may cut 7 in the right, and 3 in the wrong direction; while unindicated aconite may cut 7, 8, or 9 in the wrong, and 3, 2, or 1 in the right direction. It is highly improbable that there is any drug which would be wholly right or wholly wrong in a given condition. Very happily (providentially?), there are conditions which greatly mitigate the harm of wrong drugging. Drug treatment is attended with a favoring psychological force which counts for much. The patient expects the prescribed drug to help him. This expectation very greatly helps the right drug, and with equal force hinders the wrong drug. The wrong of hap-hazard prescribing and heroic dosing is mitigated by a paradox running through therapeutics. It depends upon the fact that a huge dose of the wrong medicine will occasionally effect a cure. The cure results from systemic shock, whereby the morbid tangle is jarred out, and deflected vital force is thrown into the normal trend. All these facts contribute to the truth that drug medication is better than drug skepticism.

5. *There is no such thing as a drug tonic—drugs are heterogeneous to the animal organism.* The self-evidence of this is indisputable, unless the heterogeneity of drugs be denied. That feature of the proposition will be discussed later.

6. *Medicine is medicine, and food is food.* So far as the meaning of language is concerned, this proposition is self-evident, and is, therefore, an axiom. But its truth is tacitly and practically contradicted every day by all doctors who give drugs. The axiomatic character of the proposition will be proven further on.

7. *The efficacy of right local treatment is equal to that of right internal treatment.* The evidence of the ages, and the consensus of intelligent medical opinion in the present, give this proposition all the force of an axiom. In fact, its truth is easily demonstrable.

8. *Hygiene, which includes every agent outside of drug-giving, furnishes three-fourths of the wise physician's healing out-*

*fit.* (Note that electricity is a drug, in *spirit*.) Of course, the word "three-fourths" in the foregoing proposition must be taken in an accommodating sense. I have assumed that medicine and that part of hygiene which consists in correctly relating the patient to the laws of life make up one-half of the doctor's curing equipment, while psychological applications constitute the other half. It will seem to many that I attach too much importance to mental healing, but I think a careful analysis of the question will convince them that I do not. Whether mind is immaterial (unthinkable), or is a highly attenuated and refined quality of matter (very thinkable), it is certain that its importance is *exactly* equaled by that of the body. Man is a binary compound, consisting of one part mind and one part matter. It is better to consider mind an exalted expression of matter, since we have to attribute to it material qualities. Action and reaction between mind and matter are equal. The culminative truth of this is seen in the fact that a sufficient mental shock will extinguish life. Precisely this much, but no more, can be said of matter. Descending from this climacteric height, we pass through an unbroken series of "paired opposites"—with reference to mind and matter—till the least consequential of all phenomena is reached. The inescapable conclusion is that mentality and materiality are equals, and he is the best physician who carries this equation on the tip of his memory. The dual quality of the question furnishes scope for the play of one-ideaisms, so that we have gross drug fanatics on the one hand, and transcendental dreamers (Christian Scientists, etc.) on the other.

I believe the foregoing propositions are sound. I feel sure that a majority of our more thoughtful physicians will accept them—possibly with slight modifications—as trustworthy beyond doubt. A few physicians already do, and it is certain that in the near future many more will adjust their therapeutic methods to the essence and spirit of these formulæ. For years I have squared my clinical methods by their significations, and great has been my reward. It is clear that adhesion to the principles un-

derlying these propositions necessarily eliminates no end of therapeutic error and abuse, besides stimulating the study of drug action—immeasurably the most important of all medical studies. The better to elaborate the meanings of the foregoing propositions, I shall now consider the clinical coincidences and avoidances resulting from their observance.

I have a case of sthenic pneumonia. The patient is a child. Little chance for psychological benefits; must depend upon hygiene and medication. So far as treatment is concerned, it makes no difference whether it is lobar, lobular, single or double pneumonia—there is *inflammation* of lung tissue. I do not know what or where the primal lesion is, but this proximate manifestation—inflamed lungs—holds a “tip” touching the animus of the malady, which has been garnered out of the medical centuries. Accompanying the inflammation is a fever. There is a cough and oppressed breathing. All these manifestations are *effects*, and since *we cannot dissipate an effect except by a removal of its cause* (axiom 2), I do not give antipyretics, nor cough mixtures. I do not apply ice, nor a mush jacket, nor heavy poultices to the chest. The ice pack can be used on vigorous children *only*, and it can be used on them only because they *are* vigorous. Cold constricts the superficies and thus prevents sudoriparous elimination of toxins. In this disease shock retards recovery, and the ice pack shocks. The treatment is harsh and unphilosophic. It is unphilosophic, because it is directed against an *effect*. The mush jacket and poultices are unmitigable abominations for several reasons. First, they violate physical logic, as topical treatment, for the skin of the chest is no nearer the lungs, in a physiological sense, than is the skin of the nates. Second, they increase the susceptibility to chill, with its dangerous consequences. Third, by their weight (and this applies to the ice pack also) they enormously tax the child's respiratory muscles. To the extent that they do this, they subtract from the patient's chances for recovery. The very least any of these applications will weigh is half a pound. The pneumonic child will breathe 30

times a minute, but call it 20. It lifts 10 pounds each minute, or 600 pounds each hour, or 14,400 pounds every 24 hours. Think of imposing such a task upon a sick child! I don't whip the vital reserve with digitalis, carbonate of ammonia, etc., and later I don't wreck physical hope with alcoholic stimulants. Each of these drugs is directed against an effect, please note. The same is true with reference to analgesics, though there frequently arise conditions in which they become the lesser of two evils, at least in a humanitarian sense. It should always be remembered that to give an anodyne is not to treat disease. It is not an easy thing, to one who has not tried it, to turn his back upon preterism, wave off orthodox impulsion, and be controlled by his own *educated* common sense. I should say to any physician who is habitually tempted to treat mere symptoms: Let there forever burn through your consciousness the inexorable and eternal cosmic rescript, *Nature never forgives*.

Most of what I do not do in pneumonia is shown in the preceding paragraph. I do improve the patient's environment in every possible way. Even and pleasant temperature; good ventilation; intelligent feeding—the food to be attenuated in even ratio with vital depression—nothing on the child but its sleeping gown; perfect quiet, etc. I do not know what the fundamental lesion is, therefore I medicate cautiously. In sthenic cases, I have relied on minute doses of veratrum and bryonia, frequently repeated. I use a tincture which has the strength of a fluid extract, free from turbidity, and I dispense it so that the adult dose is about one-fourth of a drop of veratrum, and one-sixth of a drop of bryonia. I have it given every hour. The child's dose is, of course, proportionally smaller. In asthenic cases, I substitute aconite for veratrum, giving it in much smaller doses. These remedies constitute the central drug idea in my treatment of pneumonia. I play about these with various semicertitudes, according to specific indications. When the temperature runs high, I have the patient frequently sponged with tepid water to which has been added a little



vinegar. This is causal treatment by virtue of the fact that it conduces to elimination, and whatever else nature does, she attempts to rid the system of baneful presences. It reduces the temperature by evaporation, which makes no draft on the vital resources. It is in line with natural reparative effort, while *direct* reduction of temperature by cold applications *opposes* this effort, and by so much diminishes the patient's chances of recovery. I will not state the measure of my success in this disease, for I do not want to be classified with those autolatrous fictionists who never lose any patients, and who cataclysmally spatter ink in indirect self-laudation. From studying results in my own experience, and in that of many other physicians who employ about the same method, I conclude that—through thick and thin—we should not lose over five per cent. of our pneumonia cases. The splendid negative lesson (so to call it) which we get from homeopathy is highly confirmative of this conclusion.

Summer Complaint.—The proximate manifestations of this are diarrhea and progressive loss of flesh. Accompanying these are fermentative, acid, and septic conditions within the stomach and bowels. These do not constitute the disease, but are its *effects*. The disease is back of these; it is a wrong in that neural capital (perhaps) which controls some feature or features in digestion. A high atmospheric temperature, owing partly to its depressing effects, and partly to a cause we do not understand, is antagonistic to a vigorous digestion, whether in the adult or child. The child's small stock of vital energy makes it an easy prey to this malady.

Because *we cannot dissipate an effect without removing the cause* (axiom 2), I do not give antacids, antiferments, antiseptics, etc. To employ these is to waste money, waste time, and waste the child's life. It is to put your alleged therapeutic lever under the wrong end of the disease. A moment's reflection will make this clearly evident to any thinking man. What would you think of the doctor who would prescribe sodium bicarbonate for acid dyspepsia? And yet this would be to duplicate the

method still largely employed in the treatment of summer complaint. But antisepsis is the craze these days. First sweep out the intestinal tract, then send in your antiseptics—that is the orthodox way to do it. The fact that this treatment does not cure cuts a very diminutive figure in the case, for have not the bulged-of-brow decreed that this treatment is reasonable, right, and regular?

Sepsis is not the cause of cholera infantum; it is its effect. To remove the sepsis, we must remove its cause, namely, indigestion. Disease is, in an illustrative sense, a moving train of destructive phenomena. It is not pulled by a pathologic engine, but is pushed from a pathogenic power-house. Destroy this power-house, and all trouble will cease. *Cure is prevention*, first, last, and forever. Here I will quote a little from one of the very ablest of medical articles I ever read. It appeared in the June number (1899) of the *Medical Mirror*, and is from the commanding pen of Professor H. C. Wood, M.D., LL.D.<sup>1</sup> He says:

"To cure a patient never means to repair the damage or the injury of disease. That nature alone can do. The doctor can only prevent the continuance of the cause of the damage. All successful medication is preventive medication. Prophylaxis is the very essence of cure. Instead of an ounce of prevention being worth a pound of cure, an ounce of prevention is just an ounce of cure. When we give quinine, we kill the plasmodia and prevent the ague they would have produced," etc., etc.

When called to a case of summer complaint, I, of course, first improve its hygienic relations, if that is possible. I then address myself to the difficult task of tamping into the mother's consciousness the ungrateful fact that she has been starving her child by over-feeding. If the child is bottle-fed, I instruct her to greatly reduce the amount she has been feeding it, and to largely dilute this reduced amount. A tablespoonful of milk in four to ten times the amount of water may be entirely too strong for the child, taken every three hours.

<sup>1</sup>This was wrongly credited to Dr. Wood. It was written by Dr. R. G. Eccles.

I order the nurse to keep reducing and diluting till curds cease to appear in the stools. If the child nurses, I have the mother give it the breast not oftener than every three hours; to very much shorten its usual time for nursing, and to have it follow its meal with a drink of water if possible. She, too, is to keep reducing till the food can be absorbed and there is an end of undigested material in its discharges. The child is always thirsty. I tell the mother to put an even teaspoonful of gum arabic in a glass of water; to keep this water cool, and to give the child a drink of this whenever it wants it. It does not change the taste of the water; the mucilage is grateful and healing to the mucous membrane, and above all, it is perfectly absorbable, and is quite nourishing. If so much fluid increases the amount of fluid in the stools, *what of it?* If the people have no ice chest I have them half fill a crock with cold water, and set the child's drinking water and medicine in this. The water in the crock can be replaced with cold water as often as is necessary. In this connection I want to say that with all my patients I diminish the amount and concentration of their food to a degree corresponding, as nearly as possible, with their vital depression. Think of the monstrous practice of pouring down the throats of very sick people such things as rich broths, whipped cream, egg-nog, poached egg, and the like! If the patient's stomach is in condition to digest, or absorb *any* food, he can take any of these if the amount is small enough and *sufficiently diluted*. It frequently happens that, for days, water is the only nutriment a patient can safely swallow.

I nearly always commence my treatment of summer complaint with a dose of castor oil. This is consistent, for although it is not medicinally curative, it clears the alimentary tract of obstacles to proper feeding and medication. In seven-tenths of the cases, nux vomica and ipecac combined will be the indicated remedy. The dose of this for an adult would be one-eighth to one-sixth of a drop of the nux, and one to two drops of the ipecac. Reduce dose according to age. The tincture I use is four times as strong as the common tincture. I dis-

pense in a glass two-thirds full of water—dropping enough of the medicine to make it right—and have the child take a teaspoonful every hour. Some cases require bismuth, some a mineral acid, some hydrastine, some podophyllin, some echinacea, etc., according to specific indications. In choleric conditions, minute doses of calomel help. Other cases will require arsenic or strychnia distributed about the central treatment in very small doses. I ought to add that I usually have the child drink only boiled water. Of course I prepare the medicine in and dilute the milk with the same.

I have employed this method of treatment for the last ten years, and have lost but three cases. It is certain that I have treated at least 300 cases in that time. However, I do not live in a very large city, and that has, of course, made a great difference in my favor. I am confident though, that if this method were universally adopted, the death rate from this scourge would be reduced fully one-half, if not two-thirds. Note that the treatment is strictly within the requirements of the axiomatic propositions laid down as the basis of this paper.

Anemia.—If a good deal of the foregoing has been heterodox, what follows will be inescapably more so. My contempt for the man who is a heretic for the sake of heresy is beyond expression; while I, in common with the rest of the world, hate the iconoclast. My defection, therefore, in relation to certain classical methods and medicines, is not a matter of choice, but is the result of conscientious study and experiment.

[TO BE CONTINUED]

#### Asthma:

Potassium Iodide.....	64 grn.
Fluid Extract Quebracho.....	1 fl. dr.
Syrup Wild Cherry.....	4 fl. dr.
Water.....to make	2 fl. oz.

Dessertspoonful to tablespoonful every two hours in attacks. —RIXA, *Med. Summary*.

Tinct. Stramonium.....	40 min.
Ammon Carbonate....	} of each, 20 grn.
Magnes. Carbonate...	
Sodium Bicarbonate.....	75 grn.
Powdered Rhubarb.....	8 grn.
Chloroform.....	10 drops
Peppermint Water.....	3 fl. oz.

• Tablespoonful in a wineglassful of water three times a day. —MURRAY, *Med. Record*.

## Therapeutic Nihilism

IN an editorial discussing Dr. H. T. Patrick's<sup>1</sup> allusion, in his address to the Section on Nervous and Mental Diseases at the fifty-first annual meeting of the American Medical Association, at Atlantic City, to the charges of therapeutic nihilism on the part of neurologists, the writer says that Dr. Patrick alludes to the charges that the neurologic specialists are practically therapeutic nihilists, and offers some figures that apparently point that way. In examining the issues for a year of four leading neurologic journals, he found that out of 199 original papers only three were on treatment, and out of 1033 abstracts only 74. In two years of two other high-class journals he found only one out of 115 original papers on a therapeutic subject, that is, he says, only 2.2 per cent. of the original contributions related to the cure or alleviation of disease. While his calculations are not altogether accurate, the figure is certainly a small one, and if it is to be accepted as indicating a tendency on the part of the neurologists especially, the showing would justify the charge. It ignores, however, the fact that treatment is not altogether neglected in articles in which it is not the leading theme. However, the neurologists have not been the only sinners in this respect, for the tendency to magnify the ultrascientific as contrasted with the merely practical is, so far as exists, a common one in all the departments of medicine. There is a tendency on the part of some to be led off from equally important matters by the more showy, in a scientific point of view, results of pathology and clinical diagnosis. The tendency to minute observations seems, in a sort of way and to a certain extent, hostile to that broader view that covers the whole field, it may be said, more superficially, but in some ways more advantageously. The physician is apt to be captivated by the brass and glass of the laboratory and forget that it is just as important to know how to cure as to know how to diagnose a disease. The glamor of

the ultrascientific is not confined to medicine alone, for almost the last public utterances of one of the greatest of American naturalists deprecated its existence amongst his fellow workers. It is well from time to time to have attention called to such possible tendencies. The widening of medical science should not lead to too exclusive confinement to limited departments, or to falling into ruts. Medicine is a broad subject, but it is all the more necessary that its followers should be broad in their scope and not encourage too much their limitations by too exclusive attention to narrow fields.

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## On the Use of Quinine Carbonic Ether (Euquinine) in Malaria

OWING to the intensely bitter taste and unpleasant cinchonism attending the use of the older forms of quinine, many efforts have been made to produce a new form of quinine free from these serious objections. Success seems to have at last rewarded these efforts, and the synthetic chemist has placed before us a new form of quinine which appears to answer these requirements. On account of its tastelessness and freedom from unpleasant effects it has been named Euquinine, from *Eu*, the Greek word meaning pleasant. As stated in our collective investigation report published in MERCK'S ARCHIVES for July, it is formed by linking an ethyl group with a quinine molecule, by aid of a carboxyl ( $\text{CO}_2$ ) group.

The high professional character of the physicians who stand sponsors for euquinine render it incumbent upon the profession to give this new form of quinine a thorough clinical trial. To obtain the full benefit of its advantages, however, these tests should be conducted under the rigid observance of the principles laid down by the profession for quinine medication. Tests made without the observance of these rules can only result in disappointment.

The principles which apply to the use of quinine in the treatment of malaria apply equally to euquinine, for euquinine

<sup>1</sup>*Jour. Am. Med. Assn.*, XXXV, p. 239.



is merely a form of quinine and subject to the same pharmacodynamic laws. Prof. Wm. H. Thomson,<sup>1</sup> ex-president of the New York Academy of Medicine, in an address before that body, says that he has found the following directions of great practical service in administering quinine; "First, a mercurial laxative should be given before the close of the febrile paroxysm. The relief of the hepatic congestion and the purgation of the intestines cause the drug to be absorbed sooner, and besides, removes any quinine remaining in the intestinal tract. This is an advantage, since quinine changes into a non-active form if allowed to remain long in the intestines. Second, the quinine should be given one or two hours before the chill, in order that it may be in the system during the sporulation stage, i. e., when the malarial parasite is especially sensitive to its action. It is usually advisable, because of its irritating properties, to give it in three equal doses, the last dose being given one or two hours before the chill. Third, spices have long been known to be antiperiodic themselves and to assist the action of quinine, as the popularity of Warburg's tincture in malarial countries shows. The addition of an equal part of powdered ginger in chronic malaria is often of great help. Ginger will sometimes of itself abort malaria, even where quinine has failed. Fourth, another adjuvant often of service is the oldest antiperiodic in use, viz., opium. Last summer in the cases of soldiers at Roosevelt Hospital, the camphorated tincture in half-ounce doses, three times daily, in combination with quinine, gave immediate relief. No relapses occurred after its use."

Taking these facts into consideration, it follows that in testing the merits of euquinine in malaria, a mercurial laxative should be given before the close of the febrile paroxysm; that the euquinine should be administered in divided doses one or two hours before the expected chill; that the conjoined use of aromatics, especially ginger, will often add to its effectiveness; and finally that in certain

cases opium may advantageously be combined with it. Unless all of the conditions attending the proper use of quinine are complied with, tests for the purpose of establishing the comparative advantages of euquinine over the older forms of quinine will prove unsatisfactory.

## The Coincident Use of Antagonistic Drugs

IN a discussion on the coincident use of antagonistic drugs in the treatment of diseases, Dr. N. S. Davis<sup>1</sup> says that by antagonistic drugs are meant those that influence the organs or functions in opposite directions and thereby counterbalance each other, or render the effects of both apparently nugatory. For instance, an average dose of opium or morphine diminishes the sensibility of the brain and induces sleep, and an average dose of tea or coffee increases cerebral sensibility and produces wakefulness. Consequently it requires two or three times as much opium to produce sleep if given in direct connection with strong tea or coffee as it would if given without either of the two latter. So also, strychnine, digitalin, strophanthus, etc., directly increase the activity and efficiency of the vaso-motor and respiratory nerve functions, while the well-known anesthetics, chloroform, ether, and alcohol, influence the same nerve functions in exactly the opposite direction. Therefore the latter directly antagonize the former when given to the same patient during the same day, and the patient is thereby made to appear to tolerate unusually large doses of medicine. A case well illustrating this is related by C. Hamilton Whiteford,<sup>2</sup> as follows: "A woman, aged 64, had an inoperable mass of pelvic cancer compressing the rectum, for which I performed transverse colostomy. For some days after the operation her pulse was weak and intermitted once or twice in the minute, and was only steadied by liquor strychninæ in 5-min. doses, given at first hypodermically and afterwards by the mouth.

"During the first fifteen days she had

<sup>1</sup>*The Clinical Review*, XII, p. 395.

<sup>2</sup>*Brit. Med. Jour.*, 1900, p. 1024.

<sup>1</sup>*Medical News*, LXXIV, p. 514.

395 min. In the following forty-nine days she had 5 min. every four hours, or 1470 min., making a total of 1865 min. in sixty-four days. At the end of this time she returned to her home in the country. During the nine weeks, she also had daily 8 ounces of brandy and  $\frac{3}{4}$  grn. of morphine at night. At no time did the strychnine produce toxic symptoms."

The case was reported apparently for the sole purpose of showing the unusual tolerance to continued large doses of strychnia without toxic effects, evidently giving no heed to the fact that such toxic tendency was quite accurately antagonized by the "8 ounces of brandy and  $\frac{3}{4}$  grn. of morphine" every twenty-four hours.

It was stated that the growth of the cancerous mass and the general emaciation of the patient were unusually rapid, notwithstanding the continuance of a fair appetite. Doubtless if the same dosage with strychnine had been continued after the brandy and morphine were omitted, toxic effects, even of a fatal character, would have speedily developed.

A similar disregard for the known antagonistic effects of many drugs is readily seen in the directions for the treatment of general febrile diseases in nearly all the recent works on the practice of medicine. The various authors, assuming that the chief danger in such diseases as typhoid fever, diphtheria and pneumonia is in cardiac and vaso-motor failure, quite uniformly direct the use of "stimulants and tonics," mentioning alcoholic liquors, strychnine, digitalis, etc., as the most reliable. This direction is given in such terms as to imply that all the remedies mentioned influence the functions of the patient in the same direction and may be given conjointly or in alternate doses from day to day.

And we have frequently found patients taking, by direction of their physician, fair doses of strychnine and digitalis three or four times a day, and at the same time from eight to sixteen ounces of whisky or brandy daily. The two first being well known vaso-motor and respiratory exciters and the last a direct vaso-motor and respiratory depressor, they fairly antagonize each

other, leaving the practitioner to wonder why he sees so little effect from so much active medicine, or to conclude that the toxins of the diseases are rendering the patient less sensitive to their effect. I think there is ample proof that much of the supposed tolerance of unusually large doses of active drugs in typhoid fever, diphtheria and other infectious diseases, has been caused by careless coincident administration of therapeutically antagonistic medicines.

The evils resulting from such practice are: First, an undesirable waste of medicine. To give one medicine capable of increasing the efficiency of the respiration and circulation, and follow it in an hour or two by another capable of diminishing both functions, is certainly calculated to benefit no one but the apothecary. Second, it favors the saturation of the blood and tissues with an excess of drugs liable to interfere with the functions of metabolism and excretion by which both the toxins of the disease and those of tissue waste are expelled and thereby protracts the duration and increases the danger of the disease itself. Third, it often leads to the administration of dangerously large quantities of anesthetic or analgesic remedies that not only protract the disease, but also impair the activity of the leucocytes and the natural vital resistance to toxic influences, and thereby not unfrequently cause sudden and fatal terminations near the critical stage of the disease.

But the coincident use of antagonistic drugs is not limited entirely to the clinician. Special investigators have occasionally committed the same error. In the recent experiments of Prof. Atwater for determining the effect of giving a man two and a half ounces of alcohol per day for four or five days, he gave him during the same time a liberal supply of strong coffee, which was sufficiently antagonistic to the alcohol to vitiate the results and render the experiments valueless for scientific purposes.

In making combinations of medicines for administration, due attention has generally been given to their chemical relations or incompatibilities, while their physio-

logical antagonisms have received far too little attention. Unfortunately the classification of remedies still prevalent in our text-books was made before the nervous mechanism regulating the action of the heart and blood-vessels had been fully demonstrated or experimental therapeutics had gained recognition as an important branch of study. Consequently all drugs that temporarily increase the frequency of the pulse or heart's action and exhilaration of mind, were classed as stimulants. And all those that rendered the action of the heart slower were called cardiac or arterial sedatives. Therefore alcohol, ether, and small doses of nearly all the narcotics were called stimulants, and digitalis, aconite and veratrum viride were called sedatives. Although more exact experimental investigations have caused digitalis to be separated from the class of sedatives and placed with strychnine, strophanthus, cactus, etc., as cardiac and vaso-motor tonics, i. e., drugs that impart both steadiness or slowness and force to the circulation, instead of more frequency, which is very generally an index of weakness; and the same class of investigations have demonstrated that the more frequent pulse and mental exhilaration produced by alcohol, ether, etc., are by a depressing, paralyzing influence on the cardiac and mental inhibitor nerve structures instead of stimulation; yet such is the force of habit, that the actual nerve paralyzers are found classed and used in direct conjunction with the true nerve tonics for the same patients and in the same stages of sickness.

Another clinical error of frequent occurrence consists in the use of coöperative remedies to counteract the excessive effects of each other. For instance, alcohol, chloroform, and ether are anesthetics, all acting upon the sensibility of nerves and brain in the same direction, and co-operating with the others in suspending cerebral sensibility or mental consciousness; as is fully proved by the experiments of Dubois, H. C. Wood and many others, and by the frequent use of the three mixed, as in the A. C. E. mixture for producing anesthesia for surgical procedures. Yet

for many years it has been rare to find a reported case of death from chloroform anesthesia in which it was not stated that in addition to artificial respiration hypodermic injections of ether and rectal enemas of brandy or whisky were given with the utmost diligence; apparently oblivious to the fact that both the ether and the alcohol were only additional anesthetics, directly calculated to intensify the effects of the chloroform and to make death more certain. Such treatment is no less absurd than would be the giving of a bottle of liquid citrate of magnesia to stop the excessive purgation of a dose of Epsom salts. When the pulse and respiration of a patient are suspended by an anesthetic, a hypodermic injection of strychnine and large enemas of normal salt solution, in addition to artificial respiration, would be a rational and often successful treatment. And has not the time fully come when physicians should cease to speak of, or use, general anesthetics and narcotics as stimulants and restoratives?

### Pulmonary Tuberculosis

PULMONARY TUBERCULOSIS among the poor, with especial reference to the best means of combating its manifestations without resort to expensive remedies, is interestingly considered by Dr. Burghart,<sup>1</sup> who confines his recommendations to such measures as have proven effective in his hands. Patients with fever, unless they are hopeless cases, should, he believes, be put to bed and kept there until the temperature becomes normal. Subsequent exercise must be very gradual and should be checked whenever followed by a return of the fever. When rest in bed is insufficient to reduce the temperature, cool bathing is resorted to every evening or oftener. In the severest cases only are antipyretics used, those preferred being pyramidon, quinine, and phenacetin, 0.1 Gm. (1½ grn.) hourly for five doses. Salicylic acid and antipyrine are avoided because of their diaphoretic action. For night sweats, internal medication is seldom used, atropine almost never, the most frequent remedy

<sup>1</sup>*Berl. klin. Woch.*, XXXVII, p. 192.



being camphoric acid. Generally the desired result is obtained by means of cool bathing at night with plain or acidulated water or alcohol. Mentholated alcohol, 1 to 2 per cent., is particularly recommended because of the agreeable coolness which follows its use. Recently, excellent results have been obtained by rubbing a portion of the body at a time with 10 per cent. formalin-alcohol to which 3 to 4 per cent. of oil of peppermint had been added. Diarrhea, if mild and temporary, is treated dietetically, but if more obstinate, by means of decoction of salep or small doses of bismuth, either alone or in combination with opium, tannalbin, tannigen, or dermatol. In genuine tubercular diarrhea, creosote is added to this list of drugs, and creosote-vasogen is also rubbed into the skin. For the relief of pain, the first measures are hot applications, a mustard plaster or the rubbing in of warm oil. Pleuritic pains are often much relieved by fixation of the side. When internal medication is necessary, the preferred drug is dionin, which has fewer objectionable effects than morphine, the dosage of the two being equal. Hemoptysis is treated by the application of an ice bag over the heart and the enforcement of absolute rest, both bodily and mental. The diet should be soft, but the quantity of liquid taken must be strictly limited. If sleep does not come naturally, it should be induced by the hypodermic injection of not more than 0.005 Gm. ( $\frac{1}{12}$  grn.) of morphine. Additional medication, in the form of hydrastis, ergotin, fl. ex. of ergot, or lead acetate, is given in deference to conservatism. Gelatin injections have been tried and found unsatisfactory. Excessive hemorrhage is treated by the injection of a 1½ to 2 per cent. solution of common salt (7 to 10 fl. oz.).

The direct treatment of the disease is both local and constitutional. For the former, various drugs are administered by inhalation. In ulcerated conditions of the larynx, a solution of lactic acid, ½ to 1 per cent., has been found very effective. Apparent benefit to the lungs themselves has followed the inhalation of a watery solu-

tion of formalin, at first ¼ per cent., but increased as rapidly as possible up to 2 per cent. The irritating qualities of the remedy are minimized by sprinkling five drops of peppermint oil on the inner surface of the mask. These inhalations are given three times daily for a quarter of an hour at first, but eventually for one or two hours, the solution being renewed every half hour.

As to constitutional treatment, the various organic preparations, together with sodium cinnamate and camphorated oil, are but faintly praised. Creosote and its derivatives, on the contrary, receive strong commendation, especially the former, which is always tried first and not discarded until repeated attempts have shown it to be too irritating. Under such circumstances, recourse is had to guaiacol, creosotal, or duotal, but the latter two release their creosote and guaiacol too slowly, so that large amounts pass unchanged through the intestines. Creosote is administered preferably in gelatin capsules with cod liver oil, and always while the stomach contains food. The dose of creosote advised is 1 Gm. (15 grn.) thrice daily, to be gradually increased until 8, 10, or even 12 Gm. (3 dr.) are given daily. Strong emphasis is placed on the frequent necessity of these heavy doses, which may often be continued for months without injurious results.

### Quinine in La Grippe

QUININE is the remedy that Dr. André Martin,<sup>1</sup> of the French army, has found most satisfactory in the treatment of la grippe. As this infectious malady impregnates the entire organism with its toxins which first affect, more or less seriously, the functions of the nervous and circulatory systems, it seems to him that the leading indication is to accomplish their elimination, or, at least, their neutralization, by supplementing the defensive energies of the body by means of medicinal agents capable of sustaining the force of the nerve cells and the tonicity of

<sup>1</sup>*Bull. gén. de Thér.*, CLX, p. 15.

the vascular apparatus. It is not strange, he thinks, that at the outbreak of the great epidemic of 1890, the most popular treatment with both physicians and the laity involved the administration of such drugs as antipyrine, acetanilid, phenacetin, exalgin, etc. These preparations were, at the time, comparatively new, the dangers attending their use were not fully appreciated, and their remarkable analgesic power unquestionably relieved some of the most prominent nervous symptoms. Is it, however, he asks, rational, or even prudent, to throw into the circulation substances of which the renal elimination is more or less uncertain, and the toxicity of which has been demonstrated by numerous accidents? In this connection, he mentions the cephalic congestions and the exanthems produced by antipyrine, the asphyxia due to acetanilid, and the cardiac disturbances initiated by exalgin. Antipyrine, which seems to be most commonly used in France, he particularly accuses of directly aiding the disease by its depressing effect on the heart and arteries.

For quinine, the claim is made that its range of action is far more extensive, although its effect on the painful symptoms may be less immediate. Devoid of the dangerous qualities of the synthetic antipyretics, it exercises a sedative influence on the nervous system and a tonic effect on the heart and arteries whereby both the force of the former and the contractility of the latter are increased, thus raising the vascular tension. In addition to quinine, purgatives and, usually, milk diet are essential elements of the treatment. Purgatives not only render the alimentary canal aseptic, but, at the beginning, they aid the absorption of the quinine and prevent the irritation of the digestive tract, of which some susceptible patients complain. The milk diet is valuable both on account of its digestibility and because of its diuretic action. Elimination by the skin is opposed as tending to aggravate the vascular depression and general asthenia which are always present.

On being called to a case of grippe, the author administers a purgative dose of

salts or oil and then orders the hydrochlorate or the hydrobromate of quinine in doses of 0.2 or 0.25 Gm. (3 or 4 grn.) four times daily. Although the fever will abate sometimes on the second day, but more often on the third or fourth, the remedy is continued in equal or decreasing doses for three or four days longer. In case of gastric intolerance, the drug should be given by rectum or hypodermically. If pain is very severe a small dose of antipyrine or some other similar preparation is administered during the first hours only. During the period of treatment, the patient is required to rinse his mouth frequently with very hot boiled water, to which an antiseptic, such as boric acid, has been added. For two days at least, rest in bed is considered essential. Thus treated, cases of simple grippe seldom last more than four or five days.

Complications of a gastro-enteric nature are treated with chloroform water and copious intestinal irrigations, with the occasional addition of bismuth salicylate, benzonaphthol, betol, or some other such remedy. In case of the most common complication, tracheo-bronchial catarrh, with spasmodic cough resembling that of pertussis, very satisfactory results are said to follow the administration of the syrups of eucalyptus and of tar in combination with an equal amount of syrup of morphine or of codeine. Of this mixture, the dose for adults is a tablespoonful four or five times daily. Omitting the treatment of serious complications or sequelæ, such as broncho-pneumonia, the author passes to the consideration of the condition of cardiac or general asthenia which so frequently develops, either during the course of the disease or at the beginning of convalescence. Although strychnine, particularly the arsenate, kola, the glycerino-phosphates, and sodium cacodylate are recognized as useful agents in such circumstances, reliance is chiefly placed on injections of physiological salt solution. In acute cases of cardiac asthenia, the initial injection should be of 500 or 600 Cc., and succeeded, at intervals of a day or two, by smaller ones—100 to 150 Cc.

# PROGRESS IN MATERIA MEDICA

**Creosin**, a compound of creosote, iodine, calcium hypophosphite and Peru balsam, has been introduced by Bosio<sup>1</sup> in the form of a clear yellow fluid of not unpleasant taste, which is miscible in all proportions with wine, milk, or soup. The preparation is intended to be used in all cases where creosote is given, and is said to be free from caustic taste or by-effects.

**Suprarenal Extract** is regarded by Dr. Chas. G. Hill<sup>2</sup> as the most promising remedy yet tried in the treatment of epilepsy. Although the pathology of this condition is very obscure, there is experimental evidence to support the belief that some toxine in the blood irritates the sympathetic nervous system, which reacts by causing, through the vaso-motor nerves, contraction of the visceral arterioles with consequent congestion of the brain. In corroboration of this view, he cites the following demonstrated facts:

1. That during an artificial spasm the blood-pressure in the brain is increased.
2. That the arterioles in the splanchnic area regulate the blood pressure in the brain.
3. That pressure on the common carotids will sometimes abort a spasm.
4. That amyl nitrite, a most powerful vaso-dilator, will often abort a spasm.
5. That during an artificial spasm the metabolism of the brain is somewhat, though not always, increased, as measured by the oxygen and carbon dioxide in the blood of the carotid artery and the torcular herophili.
6. That irritation of the sympathetic system of nerves produces contraction of the vessels, except in the brain; at least the existence of vaso-constrictor nerves in the brain has not been proven.

As to the nature of the poison in the blood, the author is disposed to agree with Krainsky, who identifies it with carbamate of ammonia, which will cause convulsions when injected into the circulation of animals and which, there is good reason to believe, may be formed in the human organism. According to this theory, the efficiency of sodium bromide is due to the fact that when it comes in contact with carbamate of ammonia, chemical action follows, resulting in the production of ammonium bromide and the non-toxic sodium carbamate, which is the physiological precursor of urea.

From these theoretical considerations, the author was led to believe in the probable therapeutic efficiency of suprarenal extract, especially if combined with sodium bromide and calcium chloride, the latter to assist in eliminating the carbamic acid, calcium carbamate being a normal constituent of the urine. The extract obtained, of which one grain represented eight grains of the fresh gland, was at first administered in powder form; but its action was so irregular that finally it was dissolved in glycerin and water, one dram of the solution containing one grain of the powder. This solution was prescribed in dram doses, in combination with 2 grn. of calcium chloride and 5 grn. of sodium bromide, three times daily. The only other treatment was an occasional purgative. Every case to which the above combination has been given has shown a marked improvement, both as to frequency of spasms and general health and disposition, but sufficient time has not yet elapsed to justify a definite statement as to cures.

**Urotropin** is believed by Dr. Berthold Goldberg,<sup>1</sup> who has tested it in fifty-four cases of cystitis, to merit neither the enthusiastic praise nor the utter condemnation which it has received from different observers. The fact that it acts as a urinary antiseptic by releasing formaldehyde does not, in the author's opinion, justify reliance on it alone in the great majority of cases, for the reason that other causative elements are at work besides simple local infection. It is chiefly as an adjunct to their treatment that he finds the remedy useful, although in primary cystitis of unknown origin, it is frequently sufficient in itself to bring about a cure. Similarly, the cystitis dependent on lesions of the central nervous system may often be relieved, temporarily at least, by a course of urotropin. Failure to discriminate between relief and cure is, he thinks, the explanation of the contradictory conclusions reached by good observers as to the utility of this drug. In the secondary cystitis of hypertrophied prostate, urethral stricture, vesical tumor, etc., urotropin is almost useless unless local treatment is instituted. A similar statement applies to gonorrheal cystitis, as the remedy seems to be unable

<sup>1</sup>Pharm. Centralk., XLI, p. 338.

<sup>2</sup>Bull. of the Lab. of Mt. Hope Retreat, 1899, p. 35.

<sup>1</sup>Centralbl. für inner. Med., XXI, p. 713.



to destroy the gonococci, which the author found still present in one case after persistent treatment for three months. When a secondary cystitis is itself the source of increasing infection, urotropin appears to be utterly useless.

**Argyrine** is the name given by Dr. Stéphen Arnault<sup>1</sup> to that one of the active principles of the horse chestnut to which is due its effectiveness against hemorrhoids. This alkaloid is said to be found only in the cotyledons. The remedy is administered before meals, in pills, each containing 0.01 Gm. ( $\frac{1}{10}$  grn.), which corresponds with 5 drops of the crude tincture. Generally one pill at a dose suffices, but sometimes two are required. The rapidity of action of this drug is characterized as remarkable, in illustration of which a number of cases are cited of prompt relief of long-standing pain and hemorrhage. The efficiency of the remedy is promoted by combination with organic salts, especially tannates.

**Ergotin** and tincture of the perchloride of iron, simultaneously administered, are of decided benefit in the *intestinal hemorrhage* of typhoid fever, according to Dr. H. Soulagnes.<sup>2</sup> The remedies should be given for two or three days to the daily amount of 2 Gm. (30 grn.) of the former and 30 to 40 drops of the latter.

**Suprarenal Extract** is as nearly a panacea as any remedy at our command, in the opinion of Dr. W. H. Bates.<sup>3</sup> He finds that while it is not contraindicated by any organic disease whatsoever, its indications are numerous, important and even apparently contradictory. Thus its effect on the heart and pulse seems to be beneficial no matter what the pathological condition may be. Similarly, it relieves impartially both undue contraction and dilatation of the peripheral vessels. Its influence on congested tissues is immediate and permanent. It may be used in the form of powder, emulsion or hypodermic solution, but should always be aseptic and undecomposed. Its marked blanching effect on diseased mucous membranes insures it a wide field of usefulness in inflammatory conditions of the throat, nose, and eyes. For hay fever, it is considered a specific, used both locally and internally. Good results have followed its administration in such various conditions as goiter, asthma, rachitis, nephritis, and heart disease. As a

hemostatic, it is remarkably efficient, and its employment is not followed by any increased liability to secondary hemorrhage. It has even stopped bleeding in cases of hemophilia after other remedies had failed. This effect may be obtained by its internal administration. One peculiarity of the drug is that a comparatively small dose will produce the maximum result, any surplus that is administered being apparently inert.

**Chirol**<sup>1</sup> is a solution of various resins and oils in ether and alcohol, and is intended to yield a readily removable, elastic, yet impermeable and *antiseptic varnish* for the hands of surgical operators, and to thus replace rubber gloves, etc. It is applied by simply immersing the hands in the solution contained in a basin, and moving the fingers about, opening and shutting the hands a few times, then exposing them to the air for two or three minutes, when they are dry. The solution is also applicable for sterilizing the entire operative surface. The pellicle formed is not in the least sticky, it is said, and does not peel off or crack.

**Sodium Persulphate**<sup>2</sup> has been introduced into therapeutic practice under the name of perodine, as an *antithermic* having but slight toxicity. The lethal doses, intravenously, have been found to be as follows: For a rabbit 0.4 Gm. (6 grn.) per kilo of body weight, and for a dog 0.75 Gm. (12 grn.) to 1 Gm.; subcutaneously 0.3 Gm. (4½ grn.) have been found to be fatal. The preparation being a much more practical oxidizer than arsenic or vanadium, while said to be far less toxic than these, it is believed it may find employment therapeutically, as it has shown its power to reduce the temperature of an animal nearly 4.3° C.

**Chloretone** is regarded by Dr. Freeman F. Ward<sup>3</sup> as one of the best of the *hypnotics*, not only on account of its efficiency, but because its after-effects seem to be confined to an occasional slight headache on the following morning. The usual dose is from 3 to 5 grn., at bedtime. It is best given dissolved in alcohol or whisky and followed by a glass of milk. The drug has also been found useful in cases of excessive hyperacidity of nervous origin. In such circumstances, its good effects are attributed to its local anesthetic influence on the gastric mucous membrane. In a case of whooping cough in a four-year-old child, 2½ grn.,

<sup>1</sup>Rev. de Thér., LXVII, p. 511.

<sup>2</sup>La Sem. méd., XX, p. 254.

<sup>3</sup>Four. Am. Med. Assoc., XXXV, p. 346.

<sup>1</sup>Apoth. Ztg., XV, p. 424.

<sup>2</sup>Bull. gén. de Thérap., XXXIX, p. 833.

<sup>3</sup>Medicine, VI, p. 642.

given at the beginning of a paroxysm, relieved it and secured a quiet night's rest. On theoretical grounds, the author believes that the remedy is indicated in acute alcoholism. Until sleep is produced, he advises doses of 10 grn., dissolved in an ounce of whisky or brandy, every two hours, and followed, a quarter of an hour later, by a beaten raw egg in a glass of milk.

**Ichthyol** internally in *tuberculosis of the urinary organs* is recommended by Dr. Richter,<sup>1</sup> of Glatz, who gives the clinical history of a girl of nineteen, which serves to illustrate the beneficial results obtained by its administration. The ichthyol was given in doses of 25 drops, at first, and increased to 70 drops, three times daily, well diluted. These enormous doses were taken without repugnance, or any manifestations of by-effects for months. The wonderfully good effects obtained lead the author to believe that the renal tuberculosis, as the case was diagnosed, would be cured, as the patient presents a very healthy appearance, and does not feel at all ill, although the urine is still slightly cloudy and contains a trace of albumin.

**Anti-streptococcic Serum** was successfully used by Dr. J. Michell Clarke<sup>2</sup> in the treatment of a case of *ulcerative endocarditis*. The diagnosis was based on the complete failure of anti-rheumatic remedies, the existence of a chronic valvular lesion, the occurrence of a pulmonary infarct, and the fact that the patient's progress was steadily downward until after the serum treatment was begun. The first three injections of 10 Cc. ( $2\frac{1}{2}$  dr.), twenty-four hours apart, were followed by a progressive fall of the evening temperature, which continued for three days more. A rise then supervened, which was met by an injection of 20 Cc. (5 dr.). The effects of this large dose were so prostrating that it was not repeated, but, after the intermission of a day, injections of 10 Cc. were resumed and continued for four days, with gratifying effects on the temperature and general condition. Two doses, of 15 Cc. (4 dr.) each, were followed by discontinuance of the injections, partly on account of the great improvement in the patient's condition, and partly because of the pain and local reaction caused by them. Two weeks later, as the temperature was still irregular and somewhat elevated, injections were resumed, 15 Cc. every other day for twelve

days. These later injections evoked very little local reaction, but were followed by considerable constitutional disturbance. After the last one, the patient became very weak and cyanotic, and, two hours later, had a distinct chill, the temperature rising to 104° F. This was succeeded by a rapid decline to subnormal in a few hours, and no subsequent febrile movement occurred. The further progress to recovery was uneventful.

**Hydrozone** is recommended by Dr. Milton P. Creel<sup>3</sup> for the treatment of *acute tonsillitis*. He claims that almost every case seen within twelve or eighteen hours from its incipency can be abated by spraying the tonsils hourly, for five or ten minutes, with equal parts of hydrozone and water. Very severe cases are sprayed more frequently. Cases which do not abort are said to run an unusually rapid and mild course. No other treatment is employed, unless there are complications.

**Sodium Salicylate** is recommended by Dr. H. Gradle<sup>2</sup> in the treatment of obstinate cases of *scrofulous keratitis*, especially when there is much suffering. His use of the remedy is purely empirical, but he is satisfied that it has benefited a majority of the patients to whom it was administered. If no favorable influence is observed within forty-eight hours, it should be discontinued. Otherwise, it should be tentatively stopped after a few days, and resumed again if indicated. Small doses are said to be useless. For an adult, 1.33 Gm. (20 grn.), preferably in tablet form, every two or three hours, is the quantity advised. Symptoms of intoxication must, of course, be watched for.

**Digitalis** in large doses is believed by Dr. H. P. Loomis<sup>3</sup> to be a valuable remedy for *acute alcoholism* in young, robust subjects. In ten cases treated by him, the tincture was given in three half-ounce doses, four hours apart, and, in some instances, subsequent equal doses were administered at six-hour intervals. The influence of the drug was manifested by a reduction of the temperature and subsidence of nervous excitement, which was followed by prolonged sleep and very rapid convalescence. The heart and kidneys were apparently little, if any, affected. As a result of his observations, the author concludes: "1. The indiscriminate use of large doses, half-ounce

<sup>1</sup>*Deutsche Med.-Ztg.*, XXI, p. 251.

<sup>2</sup>*Lancet*, II, 1900, p. 168.

<sup>1</sup>*St. L. Med. and Surg. Jour.*, LXXXIX, p. 80.

<sup>2</sup>*Jour. Am. Med. Asso.*, XXXV, p. 348.

<sup>3</sup>*Jour. Amer. Med. Asso.*, XXXV, p. 337.



of the tincture of digitalis in acute alcoholism, is fraught with danger. 2. The cases in which it should be given are the strong, robust, those in early life, with no complications, and those with violent delirium. In these cases the result, I believe, will be exceptionally favorable. They become quiet, go to sleep with a certainty and promptness that is obtained with no other methods with which I am familiar. 3. If after three doses no narcotic effect is noted, I would not advise a continuance of the remedy. I believe in the above class of cases it can be used with perfect safety for a limited number of doses. 4. The failures among my cases were in the chronic alcoholic subjects, in those in middle and advanced life, in the anemic, and in those with bad nutrition. 5. One fact noted, which showed marked results from the treatment, was that when the patients recovered and awoke from their sleep they were in such good condition that they were able to leave the hospital at once. This is an unusual experience, as ordinarily convalescence is delayed for two or three days."

**Arsenic** in large doses, as recommended by Dr. William Murray, proved very efficient in four cases of *chorea* reported by Dr. W. Billington.<sup>1</sup> The preparation used was Fowler's solution, and the dose administered was 15 min. three times daily, during meals. No other treatment was employed except rest in bed. In each case, symptoms of intolerance were manifested in about a week, and the remedy was discontinued. Improvement was rapid and progressive from the first, the average period from the beginning of treatment to complete recovery having been less than two weeks. Although this method is considered far superior to that of administering arsenic in small doses for longer periods, the advisability of keeping the patient under close observation is recognized.

**Quinine** in large doses is recommended by Dr. Thomas E. Mitchell<sup>2</sup> in the treatment of *puerperal fever*. His routine method of procedure is to administer 12 grn. of quinine, douche the vagina and make a digital exploration of the uterus for retained secundines. He then washes out the uterus with a weak solution of corrosive sublimate and introduces an Ehrendorfer's pencil of iodoform. This he follows by the administration of a mixture containing 40 grn. of quinine, 10 min. of

carbolic acid, bismuth, sodium bicarbonate and carminatives, in all, 8 oz. In case of prolonged diarrhea, opium is added. No more detailed information is given except that the dose of quinine is large, the endeavor being to produce cinchonism. The iodoform pencil is repeated if necessary, and sometimes frequent vaginal douching is resorted to. A tendency to hyperpyrexia is combated by means of an ice cap and cold sponging. Such a course of treatment will, according to the author, almost always eventuate in recovery.

**Hedonal** was administered by Drs. Nawratzki and Arndt<sup>1</sup> to 67 insane patients for the purpose of testing its sedative and hypnotic qualities. With regard to the former, the result was almost entirely negative, even when large doses were given. The hypnotic effect, on the contrary, was indubitable, but by no means certain. Generally sleep followed the exhibition of the drug in about half an hour, but sometimes the interval was two or three hours. Its duration varied from two to nine hours, occasionally with intermissions, especially when the remedy exerted a diuretic influence. The usual effective dose was 2 or 3 Gm. (30 to 45.). On account of the disagreeable taste of the drug and its diuretic activity when given in solution, it was generally placed dry on the tongue and washed down with aromatic water. The remedy was almost always well borne and produced no observable ill effects on any of the vital organs. Except in the case of alcoholics, there was seldom any complaint of after effects, such as headache or dizziness. In conclusion, the authors express their belief that hedonal is worthy of a place in the list of eligible hypnotics, though it falls far short of possessing the ideal combination of qualities.

**Fersan** is considered by Dr. Sigmund Kornfeld<sup>2</sup> the best of all iron preparations for internal administration, especially in cases of *nervous disease*. His preference is based on the facts that the remedy is almost completely absorbed, that it is taken without repugnance, that it never causes disturbance of stomach or bowels, that it is a valuable food as well as medicine, and that it contains an appreciable amount of phosphorus. Under its influence, he has observed an invariable increase in the number of red corpuscles and in the percentage

<sup>1</sup>*Lancet*, II, 1900, p. 176.

<sup>2</sup>*Brit. Med. Jour.*, 2063, p. 78.

<sup>1</sup>*Therap. Monatsh.*, XIV, p. 372.

<sup>2</sup>*Klin.-therap. Woch.*, VII, p. 898.



of iron and hemoglobin, these increases being rapid at first, then slower, and eventually ceasing. These blood changes are generally parallel to concomitant improvements of the general condition, gain of weight, and increase of appetite. In eighteen cases of nervous disorder reported by the author, the effect of fersan on the blood pressure was carefully investigated. Except in one case, of tabes, there was a very gratifying reduction, which did not, however, entirely correspond with the improvement of the quality of the blood. The usual dose of the remedy was 2 Gm. (30 grn.) three times daily, and it was administered either in powder or tablet form, or, after mixing with water, in milk or soup.

**Thiocol** was employed in nine cases of *phthisis* by Dr. John Moir,<sup>1</sup> of Edinburgh, with very satisfactory results. "All the cases were treated in a very poor neighborhood, with very unhygienic surroundings, and showed marked signs of improvement," so that he "can thoroughly recommend a fair trial of thiocol as opportunity arises, having already found it distinctly useful." The author advocates that "preference should be given to thiocol in all cases where the creosote, tar, or guaiacol treatment is useful or desirable, particularly in pulmonary tuberculosis, as an adjunct to other treatment." The writer has also "found it easily taken on account of its solubility, inodorous, non-irritating and non-toxic qualities. In several cases of chronic bronchitis and severe winter-cough recently, it has relieved the expectoration, soothed the cough, and assisted the appetite."

**Formaldehyde-bisulphite**,<sup>2</sup> according to a foreign patent, is a compound of formaldehyde and sodium bisulphite which, it is claimed, possesses the combined antiseptic properties of its constituents. Its composition is said to be  $\text{H.COH.Na}_2\text{S}_2\text{O}_5$ , and it is obtainable by simply mixing the two substances, and evaporating to crystallization.

**Sea Salt** has been used with excellent results by Dr. Friedrich Luithlen<sup>3</sup> in the local treatment of *necrotic acne*. At night, the affected area was covered with a compress wet with a 1.2-per-cent. watery solution of the remedy, and by day, a lanolin ointment of equal strength was rubbed in. One of two patients thus treated improved

rapidly, but discontinued the applications as soon as the eruption disappeared from the parts not covered with hair. Although the second patient began treatment at a time when his trouble was unusually active, the effect was so prompt that he was practically healed within four days. Seven months later, he had had no recurrence of the eruption. The author suggests no explanation of the therapeutic efficacy of the salt in these cases, but believes that his success justifies a trial of the remedy in other refractory skin eruptions.

**Tinea Tonsurans** is treated by Dr. S. A. Buchanan,<sup>1</sup> by removal of the affected hairs, washing with soap and water and the application of the following ointment:

Carbolic Acid ..... 1 dr.  
Oint. Mercury Nitrate,  
Sulphur Ointment..... of each  $\frac{1}{2}$  oz.  
Apply thrice daily.

For *tinea circinata*, he regards oleate of copper, applied twice daily, as almost a specific. In *tinea sycosis*, he removes the affected hairs and then orders

Ichthyol ..... 20 min.  
Precip. Sulphur ... 1 dr.  
Bismuth Formic-iodide .....  $\frac{1}{2}$  dr.  
Benzoinated Vaseline..... 1 oz.  
Apply locally thrice daily.

**Arsenic**, hypodermically administered, has been successfully used by Dr. Louis Kolipinski<sup>2</sup> in the treatment of chronic and tubercular *enteritis*. The preferred preparation is sodium arsenite, of which from 1-64 to 1-32 grn. is dissolved in 1 dr. of 0.5-per-cent. salt solution for one injection. The operation should be repeated every day or two in severe cases, twice weekly in average ones, and once weekly in mild ones. If decided improvement is not observed within a week or two, the treatment should be discontinued as useless; otherwise, it should be kept up for a month or two. The injections are said to be almost painless. No other medication is employed, and the dietary restrictions are confined principally to desserts and fruits, although the nearer the approach to a milk diet the better.

**Unguentum Credé** has signally failed to justify the claims of its advocates, in the experience of Dr. Wilhelm Strohmayer,<sup>3</sup> who employed it in a number of septic conditions, with little or no result. Of six cases of puerperal septicemia, one only

<sup>1</sup>The Therap., Apr. 16, 1900.

<sup>2</sup>L'Union Pharm., XLI, p. 259.

<sup>3</sup>Wien. klin. Woch., XIII, p. 716.

<sup>1</sup>Med. Sum., XXII, p. 127.

<sup>2</sup>Med. News, LXXVII, p. 202.

<sup>3</sup>Munch. med. Woch., XLVII, p. 1064.

showed, by a temporary reduction of temperature, a possible effect of the inunctions. On the other hand, another pyemic case developed five new abscesses while the remedy was being energetically applied. In no case was any improvement of the general condition observed. Similar failures were encountered in empyema and other chronic suppurative processes. In a case of multiple furunculosis, the remedy appeared to be absolutely inert. One case of septic scarlet fever did recover after a course of inunctions, but as other effective measures were simultaneously employed, the author is unable to apportion the credit. He is satisfied, however, that unguentum Cr  d   is not a specific against sepsis, and that there is no present justification for the abandonment of old, approved methods in favor of the new inunction cure.

**Arsenic Paste** is strongly endorsed by Dr. Daniel Lewis<sup>1</sup> as a most efficient application to cutaneous cancers involving not more than four square inches of area. The preparation preferred, known as Bougard's paste, is composed of the following ingredients:

Wheat Flour.....	60 Gm. (15 dr.)
Starch.....	60 Gm. (15 dr.)
Arsenic.....	1 Gm. (15 grn.)
Cinnabar.....	5 Gm. (75 grn.)
Sal Ammoniac.....	5 Gm. (75 grn.)
Mercury Bichloride....	0.005 Gm. ( $\frac{1}{2}$ grn.)
Solution Zinc Chloride at 52� F.....	245 Gm. (60 dr.)

The first six substances are separately reduced to fine powder and mixed. They are then thoroughly stirred as the solution is slowly added, so as to avoid the formation of lumps. A thick layer of this paste is applied on cotton to the surface of the cancer which, if not already ulcerated, is first denuded by means of caustic potash. At the end of twenty-four hours, the paste is removed, and warm flaxseed poultices are applied until the slough separates, about a week later. The resulting ulcer is treated in the usual way until healed. A second application is said to be seldom necessary.

**Ductless Gland Therapy** has been recently reviewed by Dr. R. H. Cunningham,<sup>2</sup> who adds the results of his personal experience with the various preparations. Those derived from the spleen, the ovaries, and the lymphatic glands he has had little occasion to use, and does not feel prepared to express any conviction as to their thera-

peutic activity. The pituitary body has given him practically no results beyond the temporary relief of headache in acromegaly. Suprarenal extract has disappointed him by not producing the marked vascular and cardio-tonic effects ascribed to it by some observers. In three cases of Graves' disease, the benefits following its administration were less evident than in cases treated with phosphate of soda. Thymus gland was used in ten cases of exophthalmic goiter, of which three only were decidedly improved. Thyroid extract, on the contrary, has abundantly justified its addition to the materia medica. Its effects in myxedema and cretinism are described as marvelous. A serious disadvantage attending its employment, especially in large doses, is the not infrequent appearance of symptoms of poisoning. This drawback may be avoided, according to the author, by using only the purified colloid, prepared in the manner advised by Hutchison.

**Salol** was used successfully in a case of *diabetes mellitus* reported by Dr. Zaudy.<sup>1</sup> When first seen, the patient was passing about 250 Gm. (63 dr.) of sugar daily in three or four quarts of urine. Under the influence of alkalies and a restricted diet, the daily output of sugar rapidly fell to about 40 Gm. (10 dr.), at which point it remained practically stationary until salol was administered. The remedy was given in four daily doses of 1 Gm. (15 grn.) each for four days, at the end of which period the amount of sugar had been reduced to a trace. Discontinuance of the drug was followed by an increase, for two days, to 10 or 12 Gm. ( $2\frac{1}{2}$  or 3 dr.), after which there was complete and permanent disappearance, in spite of the gradual removal of the restrictions as to diet. Nine months later, when this patient was again seen, having in the meanwhile eaten as he pleased, his urine was entirely free from sugar. That salol is a specific for diabetes, the author does not pretend, as it has often failed him, but he believes that it is always worth a trial on account of the occasional successes, such as the one reported.

**Hay Fever** is the subject of a communication by Dr. H. Holbrook Curtis,<sup>2</sup> of New York, who believes himself prepared to confer immunity to this malady. Although he has not yet had an opportunity to test his theory, the hay fever season of last year having arrived before his remedy was ready,

<sup>1</sup> *Med. Rev. of Rev.*, VI, p. 526.

<sup>2</sup> *Med. News*, LXXVII, p. 83.

<sup>1</sup> *Deut. med. Woch.*, XXVI, p. 496.

<sup>2</sup> *Med. News*, LXXVII, p. 16.



the remarkable curative results of his mode of treatment certainly tend to justify his faith. Certain experiences suggested to him the probability that the internal administration of the irritating portions of a plant might render one insusceptible to its external influence. Acting on this idea, he had prepared a tincture and a fluid extract of the flowers and pollen of the rag-weed, which he regards as the principal cause of hay fever. Although unable, as already stated, to use the remedy prophylactically, he prescribed it in a number of cases in which the disease was fully developed, and obtained prompt and decided amelioration of all the symptoms. He believes that an attack can be completely avoided by taking from two to ten drops of the tincture or fluid extract of rag-weed three times daily during the two weeks preceding the expected onset.

**Chronic Middle Ear Suppuration** requires for its successful treatment, according to Dr. Wilhelm Grosskopf,<sup>1</sup> the preliminary removal of all pathological growths from the upper air passages. The direct treatment he begins by daily irrigation with simple boiled water or a 3 per cent. solution of boric acid. The outer ear is then carefully dried and finely powdered boric acid is blown in through the perforations in such a manner as to leave a very thin layer on the drum membrane in their vicinity. To small and high-lying perforations, liquid applications are made, such as alcohol, pure or diluted, 2 per cent. solution of tannic acid or solution of silver nitrate. Better results are said to be obtained by an occasional change of application than by adherence to any particular one. In some cases of persistent suppuration, recourse has been had to trichloroacetic acid, both pure and in 50 per cent. solution, but the results were unsatisfactory. The drug proved very efficient, however, as an aid in closing perforations after the cessation of suppuration, eleven complete and one partial closure resulting in the seventeen cases in which it was employed for that purpose. Occasionally, its application had to be temporarily suspended on account of renewed suppuration which did not, however, interfere with the progress of the closure.

**Myxedema** in an adult, successfully treated with thyroid extract, is the subject of a communication from Dr. Ethan E. Gray,<sup>2</sup> of Chicago. When first seen, the

patient had suffered for thirteen years, the swelling having begun at the feet and extended gradually upward until, at the end of four years, the whole body was involved. The hair then began to fall out and continued to do so until she became almost completely bald. Meanwhile, headaches increased in frequency, her voice became almost masculine in character, and her speech was more or less indistinct on account of the thickness of her tongue. Mentally, she became moody, stupid and drowsy. At the time of examination, the whole body was greatly bloated, especially the abdomen and legs. The thyroid gland could not be felt, but the other viscera were apparently normal. The patient was immediately placed on 3 grn. doses of desiccated thyroids, at first four times, and later, three times daily. She was also given a hermatinic and an occasional dose of calomel. After three weeks of treatment, the swelling began to subside, and, after six weeks, improvement of the mental condition was noticeable. Hair then began to reappear and the voice became more feminine in character. The subsequent history was of steady progress to practically complete recovery.

**Typhoid Fever** as treated in the military hospital at Fort Myer, Va., during the fall of 1898, is the subject of an interesting paper by Dr. Elmer E. Heg.<sup>1</sup> The author is strongly of the opinion that the so-called abortive treatment of this disease is a failure, the apparent successes being due to faulty diagnosis, which is very common in the early stages. On account of the frequent irregularity of the symptoms, he attaches great importance to the Widal test; but if, for any reason, that is omitted, he believes that, in the interest of the public health, every suspicious case should be regarded as typhoid until proved to be something else. As several different plans of treatment were in simultaneous operation at the hospital, an excellent opportunity was afforded for a study of their comparative values. Therapeutic science is little complimented by the doctor's conclusion that "the best results, in most cases, came from practically the old expectant plan, viz.: as full a liquid diet as could be digested, as little medication as possible, watching all symptoms carefully and meeting indications as they appear, supporting heart and nervous system early and regularly when once begun, reducing only excessive temperature and that in the least disturbing way, either by sponging or wet

<sup>1</sup> *Therap. Monatsh.*, XIV, p. 356.

<sup>2</sup> *Med. Record*, LVIII, p. 69.

<sup>1</sup> *Med. Sent.*, VIII, p. 223.



packs; in fact, to make and keep the patient as comfortable as possible with the least disturbance." The Woodbridge system and its originator are vigorously condemned. The Brand method is declared to be advisable only when begun early in the disease with strong, full-blooded, plethoric patients. Antipyretic medication is condemned absolutely. Intestinal antiseptics, of which salol is considered the best, are said to accomplish little but the relief of tympanites. For this purpose, however, oil of turpentine is preferred. Heart weakness was most satisfactorily treated with strychnine. The moderate use of laxatives is advocated as a perfectly safe measure of precaution against auto-infection. The injection of salt solution is regarded as inadvisable during a hemorrhage, but as decidedly beneficial after it.

**Insolation** is discussed editorially in a contemporary,<sup>1</sup> three forms of the disturbance being recognized, viz: the apoplectic, thermic fever and simple heat exhaustion. In the way of treatment, the early and free use of stimulants, preferably ammonia, is urged. For subnormal temperature, the hot bath is recommended, and for high temperature with cerebral congestion, the ice water bath with friction or the application of ice to the head. In mild cases, mere sponging with ice water is often sufficient. Threatened sudden death from asphyxia demands venesection. Later, digitalis may be required for cardiac weakness. Impending respiratory failure should be met by a resort to artificial respiration, which should be continued until the danger is past. If ice is not available, the temperature may be reduced by means of antipyretics, but these agents must be used with great caution. After treatment is important and consists chiefly of good nursing, light diet, mild stimulants and fresh air. Subsequent attacks are best guarded against by consistently temperate, well-regulated life and the avoidance of exposure as far as possible.

**Pulmonary Tuberculosis**, according to Dr. Thomas J. Mays,<sup>2</sup> of Philadelphia, has been most successfully treated by agents and measures which exert an influence on the nervous system, such as strychnine, the hypophosphites, atropine, cod-liver oil, cayenne pepper, arsenic, electricity, etc. Inspired by a recognition of this fact, he was induced to try the injection of small doses of silver nitrate into the superficial tissue of the neck over the course of the

vagi, with the object of producing counter-irritation and thereby stimulating the resistance of the diseased lungs. The usual dose is 5 min. of a 2½ per cent. solution, to be repeated in a week or ten days, or, in urgent cases, in three or four days, unless the local reaction has been too severe. As the silver salt causes considerable local pain, a preliminary injection of cocaine hydrochlorate is advised, both solutions to be forced through the same needle, which should not be withdrawn after the first injection. The point selected for the operation is generally on the affected side, about midway between the angle of the jaw and the clavicle, and over or a little behind the pulsating carotid artery. In order to avoid wounding the large vessels, the needle should be inserted just beneath the skin after the latter has been raised from the subjacent tissues. The author summarizes the results of this method of treatment in language which does not admit of condensation, as follows: "I have given the injections to more than 150 consumptives, and I find that they greatly and sometimes entirely relieve the cough and expectoration in a very short time; that they check vomiting, improve the appetite, increase the general strength, ameliorate the physical signs, suppress the fever, abate night sweats and in some cases produce a surprising increase in weight." As might be expected, on account of the progressively destructive nature of consumption, the author found that the less advanced the case, the greater, as a rule, the benefit derived from the treatment."

**Neurasthenia** and its treatment has been made the subject of investigation by Dr. Otto Dornblüth,<sup>1</sup> of Frankfort, who reports having carried out a very extensive series of experiments with a view to ascertaining the comparative value of remedies for the treatment of neurasthenia. Of all the remedies tried, none gave such good satisfaction as did Codeine Knoll, the action of which was almost specific in character in the more severe forms of the disease. The codeine was given in doses of 0.01 Gm. (⅓ grn.) thrice daily, which were increased in from 4 to 5 days to 5 or 6 times this quantity, and with the result that in almost every case the patient expressed his great satisfaction at being enabled to continue his occupation, because of the immense relief afforded by the remedy. By this mode of treatment many physicians and teachers, both male and female, were much benefited. The ineffectiveness of morphine, which was also

<sup>1</sup> *St. Louis Med. Era*, IX, p. 397.

<sup>2</sup> *Med. Sum.*, XXII, p. 131.

<sup>1</sup> *Therap. Monatsh.*, XIV, p. 339.

tried in this class of cases, is all the more remarkable as it demonstrated that the results obtained with codeine were not due to narcosis or euphoria. Good results were also obtained with small doses of bromides, say 0.5 Gm. (8 grn.) thrice daily in solution, but the action is not only much less and incomplete, but the bromide is effective only so long as the medication is sustained; whereas with codeine an actual cure results in the majority of cases, partly by reason of the rest the nerves have been afforded, and partly through trophic influences. According to individual cases, the doses must be gradually increased up to 0.02 Gm. ( $\frac{1}{3}$  grn.) five times daily, and given for from 4 to 6 weeks, and then gradually reduced. The reduction was usually begun when the feeling of relief had set in and continued for one week without an increase of the dose being necessary to maintain it.

The author considers this method of treatment of neurasthenia as the greatest advance in the therapy of this important disease. He does not wish to imply that only codeine should be given, but that the patient's mode of living, his occupation, nutrition, etc., should also be considered, nervous excitement avoided, etc.

**Tetanus** in man, according to Dr. Alexander Lambert,<sup>1</sup> is almost always due to a mixed infection and will seldom develop if wounds are properly cleansed and kept clean until healed. For this purpose, the use of mercury bichloride is deprecated, as it is comparatively inert toward tetanus spores. His recommendation is that, after the removal of all dirt and accumulations, every recess of the wound should be thoroughly irrigated with one of the following solutions: Gram's, Lugol's, 1-per-cent. iodine trichloride,  $1\frac{1}{2}$ -per-cent. carbolic, 1-per-cent. kresol or 1 to 2-per-cent. formalin. Into sloughing tissues he advises the injection of the antiseptic solution through a hypodermic needle. For small punctured wounds of the hands and feet, excision is recommended. The indications laid down for general treatment are to eliminate the poison as rapidly as possible, to counteract its physiological effects, and to alter it chemically so as to reduce or destroy its toxicity. For the first indication, free administration of fluid is advised in order to increase the renal secretion. To meet the second indication, the remedy most favorably considered is chloral, to which may be added, in combination or alternation, bromides, physostigmine and antimony. To relieve pain and

produce sleep, chief reliance is placed on morphine, especially when combined with antimony. To combat the sudden development of spasm of the glottis and respiratory muscles, it is advised that amyl nitrite be always at hand, ready for instant use. The chemical antidotes are dismissed with scant consideration as impracticable or too dangerous, with the exception of the antitoxic serum. As to this, the author's conclusion is that it is decidedly beneficial in subacute and chronic cases, but has little or no effect when the symptoms develop early and with great violence. Finally, he expresses strong faith in the efficacy of preventive inoculations when there is reason to fear that a wound has been infected with tetanus germs.

**Tabes Dorsalis** is seldom or never amenable to curative treatment, in the opinion of Dr. P. K. Pel.<sup>1</sup> Although the dependence of this disease, in the great majority of cases, on a previous syphilitic infection is recognized as extremely probable, the latter is regarded as a predisposing rather than an active cause of the former. In other words, when tabes develops, the syphilitic poison has completed its work; it has diminished, so to speak, the resisting power of the nervous system to such a degree that it succumbs to influences which, in normal conditions, would produce only temporary functional disturbance. Nevertheless, the possibility is admitted that, in exceptional instances, tabes may coexist with an active luetic process, or may be simulated by such, in either of which events the benefits of mercurial treatment are indubitable. The indications laid down for a course of inunction are as follows: 1. When signs of active syphilis are still present. 2. When the syphilitic attack was comparatively recent and was not properly handled at the time. 3. When irregular or atypical symptomatology suggests the simultaneous existence of brain or spinal syphilis. With these exceptions, the use of mercury in tabes is condemned as useless, objectionable, and not free from danger. The utility of potassium iodide in genuine, uncomplicated tabes is likewise considered more than doubtful. Of other drugs, such as ergot, strychnine, gold and silver preparations, little is said. Strychnine, especially when administered hypodermically, is credited with beneficial effects on some of the paralytic phenomena. Some hope is expressed that a more or less specific action may yet be obtained from silver nitrate or some of its substitutes, such as protargol. Pending such developments,

<sup>1</sup>Med. News, LXXVII, p. 12.

<sup>1</sup>Berl. klin. Woch., XXXVII, p. 629.



however, the most important element in the general treatment of tabes is the insistence on temperance in all things, for, whether or not the process can be checked by therapeutic measures, it certainly can be accelerated by excesses of every kind.

For the relief of symptoms, much may be accomplished by judicious treatment. Against the lancinating pains, morphine is, of course, effective, but it should be reserved for use as a last resort after the failure of all other means. Of frequent utility, there are numerous remedies, such as antipyrine, acetanilid, phenacetine, pyramidon, sodium salicylate, cocaine, salophen, quinine, etc. Against increasing painful attacks, chloral hydrate should be employed, and the external use of ichthyol is here particularly indicated. Sometimes, warm baths are of decided benefit. More or less relief of the girdle feeling may be obtained by counter-irritation, warm and cold applications, or by means of a tight belt. The various methods of stretching the spine are disapproved as of insufficient value to balance their inconveniences and dangers. The gastric crises require rest in bed and avoidance of all excitement. Mild attacks may be somewhat relieved by the administration, preferably by rectum, of nerve sedatives, such as the bromides, cocaine, or antipyrine; but severe attacks demand repeated doses of morphine. The weakness of the bladder and sexual organs is best met by the local injection of strychnine or ergotine; eventually, permanent catheterization may become necessary. For general bodily weakness arsenic is the most efficient remedy.

Important aids in the treatment of tabes are baths, massage, electricity, and all measures that conduce to maintain or improve the general health and spirits of the patient. Finally, when there is much ataxia, great value is attached to the system of re-education founded by Fraenkel, by means of which the lost coördination may be largely regained.

**Mucous Enteritis** is very easily diagnosed, according to Dr. Philip F. Barbour,<sup>1</sup> who says that the characteristic discharges are simulated only by those of tubercular enteritis. In the treatment, attention should be paid to the food, which must be chiefly nitrogenous, simple and easily digested: even the internal administration of cod-liver oil is objectionable. Good hygienic surroundings are important. Flannel should be worn next the skin,

which should be sponged daily with cold water, salt water, or alcohol, and then rubbed briskly. Subsequent inunction with hot cod-liver oil is beneficial if the skin is very dry. Internally, the bitter tonics are indicated, particularly nux vomica. The mildly astringent action of bismuth in small doses is beneficial. On account of deficient gastric juice, pepsin is usually needed, but hydrochloric acid is seldom well borne. If constipation is present at the beginning of an attack or during an interval, a combination of sodium sulphate and sodium phosphate should be administered. As a curative agent, much reliance is placed on *hydrastis canadensis*, especially in combination with *sanguinaria*. Finally, copper arsenite is commended as an effective remedy in this disease.

**Whooping Cough** has been treated with many drugs by J. A. Reagan,<sup>2</sup> but for the past thirty-five years he has been satisfied to adhere to the following prescription:

Alum, finely pulverized.....1 oz.

Strained Honey.....3 fl. oz.

Mix thoroughly. One teaspoonful every hour when awake, whether coughing or not.

For the prevention of cough after measles, he has had invariable success from the administration of a strong tea made of the buds of the common Balm of Gilead, and sweetened with honey.

**Acute Tonsillitis** should not be regarded as a trivial affection, according to Dr. Joseph H. Abraham.<sup>2</sup> In his opinion, which he supports by citing numerous cases, the inflamed tonsil is frequently the door by which pathogenic germs enter the organism. To provide against this contingency, he recommends early and vigorous treatment. At the beginning of an attack of acute catarrhal tonsillitis, he administers a saline cathartic and then sprays, or paints the tonsils and pharynx every hour with the following solution:

Formalin.....15 to 20 min.

Potassium Chlorate.....1 dr.

Solut. Iron Chloride.....1 fl. dr.

Peppermint Water..to make 4 fl. oz.

Great benefit is also derived from the application of cold, externally, by ice bag or compresses, and internally, by gargles or cracked ice. Equal portions of cold milk and vichy should be given freely. For fever, antipyrine is advised and, in addition, the tri-hourly administration of a capsule containing 1 grn. of quinine hydrobromate, 2 grn. of sodium benzoate,

<sup>1</sup>*Char. Med. Jour.*, XVII, p. 15.

<sup>2</sup>*Jour. Am. Med. Asso.*, XXXV, p. 152.

<sup>1</sup>*Am. Pract. and News*, XXX, p. 11.



and 5 grn. of salol. If the deeper structures become involved, with consequent edema, free bleeding is induced by means of multiple punctures and scarifications, and heat is applied, both internally and externally.

In other forms of tonsillitis, if seen within the first twenty-four hours, abortive treatment is advised by means of the administration, every thirty minutes for eight doses, of a tablet containing  $\frac{1}{4}$  grn. of calomel and 1 grn. of sodium bicarbonate, to be followed later by a Seidlitz powder. Every two hours, the yellowish exudate is removed from the crypts with a curette, and then, by means of a cotton-tipped probe, to the surface and all recesses of the tonsil is applied the following solution:

Menthol.....	$\frac{1}{2}$ fl. dr.
Guaiacol.....	$1\frac{1}{2}$ fl. dr.
Glycerin.....	2 fl. dr.
Absolute Alcohol.....	to make 1 fl. oz.

Cold is applied immediately. Half a drop of tincture of aconite is given every half hour until physiological effects are produced. Every two hours, a powder, consisting of guaiacol carbonate, 1 grn.; sodium benzoate, 2 grn.; and sodium salicylate, 5 grn., is administered in a little milk or water. If pus forms, it is evacuated as soon as discovered, and the cavity is then sprayed with compound formalin solution.

**Alcoholism** is, at a certain stage of its development, susceptible of cure by serum-therapy, according to Dr. V. Thébaud.<sup>1</sup> The favorable period for treatment precedes the production of appreciable organic changes by the ingested alcohol, but covers the longer or shorter interval during which only functional disorders are present, although the patient may be drinking constantly and even heavily, with or without occasional lapses into intoxication. The serum is obtained from a horse that has been subjected to a course of alcohol. It is injected hypodermically, 5 Cc. (80 mim.) at a time, every three or four days, until a peculiar morbillic eruption appears on the skin. The patient is then given a rest of about a week's duration, after which a final injection completes the cure. The effect of this treatment is to cause a gradually-increasing disgust or intolerance for liquor, which culminates in an absolute abhorrence of it. The activity of the serum is supposed to be due to a hypothetical substance, not yet isolated, for which the name of anti-ethyline is proposed. That suggestion plays no part in the cure the author is satisfied,

because nearly all his failures have been with highly suggestible patients, and because brilliant success has resulted when the patient was unaware of the object of the treatment. In no case is the slightest restriction placed on the ordinary habits. The distaste for liquor which is developed is believed to be purely physiological and in no degree psychical. Of fifty-seven cases subjected to this treatment, all were cured except those who either had some organic disease or else discontinued the remedy before its physiological effects had been produced. Wine drinkers were found to be more refractory than spirit drinkers.

**Appendicitis**, with especial reference to its treatment when operation is unnecessary or impracticable, is the subject of a contribution by Dr. Chas. Rosewater.<sup>1</sup> In order to remove irritating intestinal accumulations, he advises an initial dose of calomel, to be followed by a saline and, in case there is no danger of rupturing an abscess, by a high enema of a gallon or two of warm salt water. For the relief of pain, opiates should be avoided as far as possible, the local application of ice being frequently sufficient to afford marked relief. To keep the intestines as free from waste material as possible, the diet should be liquid, preferably peptonized milk. If the stomach is irritable and vomiting troublesome, relief may often be obtained by the hourly administration of  $\frac{1}{20}$ -grn. doses of calomel in conjunction with bits of ice. Fever and nervous manifestations are combated with 2 grn. each of salol and phenacetin and  $\frac{1}{2}$  grn. of caffeine citrate every two to four hours. After the subsidence of the inflammatory symptoms, the removal and absorption of the exudate is promoted by the administration every four hours of from 1 to 3 grn. of ammonium iodide, followed by copious draughts of hot water. The free drinking of hot water is encouraged during the entire progress of the disease.

**Hay Fever** is not a strictly local disease, in the opinion of Dr. A. G. Aldrich.<sup>2</sup> Although irritation of the nasal mucous membrane is doubtless the exciting cause, the co-operation of defective metabolism is necessary. The general treatment varies with the individual, its object being the restoration of physiological harmony. For the anemic and neurotic, a combination of arsenic, quinine, zinc valerianate, and asa-fetida has been found useful. Full-blooded

<sup>1</sup>*La Trib. méd.*, XXXIII, p. 566.

<sup>1</sup>*Med. Rec.*, LVIII, p. 173.

<sup>2</sup>*Med. Dial.*, II, p. 199.

patients are given small doses of strychnine combined with a digestive ferment and a morning draught of sodium phosphate. Some cases require acids, others, alkalies, but all are injured by alcohol. Locally, it is necessary to remove all abnormal growths, to correct all deformities, and to obliterate the sensitive areas, which last is best done with the galvano-cautery. If the cautery is not used, the following local treatment is beneficial if begun several weeks before the attack and continued throughout the entire hay-fever season: A daily flushing, followed by a swabbing, of all nasal spaces, especially over the sensitive areas, with an alkaline antiseptic solution, then the application of solution of suprarenal extract by both spray and swab, this, in turn, to be succeeded by mentholated alboline or Blandine comp. Frequently it is advantageous to use cocaine just before applying the suprarenal solution.

**Puerperal Eclampsia** is always to be feared, according to Dr. J. B. Todd,<sup>1</sup> if the patient develops a violent headache during labor and the two following days. For the treatment of the actual convulsion, he relies almost exclusively on the hypodermic injection of morphine in large doses,  $\frac{1}{2}$  to  $1\frac{1}{2}$  grn., to be repeated whenever the headache recurs. For diuretics he has little use, but advises the administration of a hydragogue cathartic, such as elaterium. After treatment consists of the following prescription:

Tr. Iron Chloride..... 1 dr.  
Mercury Bichloride..... 1 grn.  
Twelve drops in a capsule every four hours.

Out of ten cases thus treated, there was but one death, of a patient who had had four convulsions before the treatment was begun.

**Diarrhea** in children is not an indication for starvation, in the opinion of Dr. G. F. Walker.<sup>2</sup> Unless obstinate vomiting interferes, he gives a plentiful supply of pre-digested food. For drug treatment, his cardinal rules are negative rather than positive, that is, he avoids emetics if there is vomiting and cathartics if there is diarrhea. In eleven years of active practice, he claims not to have lost a case. For moderate vomiting, he dissolves  $\frac{1}{10}$  grn. of copper arsenite in half a glass of water and gives a teaspoonful every half hour; if the vomiting is severe, he adds 1 drop of fluid extract of

ipecac. When a good deal of thick tenacious mucus is thrown up, he gives to a two-year-old child 5 drops of compound tincture of opium and 3 or 4 grn. of bismuth subnitrate every two hours. Forcible vomiting is regarded as an indication for potassium bromide, 2 to 4 grn. every two to four hours. When the diarrheal discharges have an offensive odor, the remedy employed is zinc sulphocarbolate in grain doses; if the passages are profuse, 1 drop of fluid extract of trumpet plant is added. Mucus in the stools is treated with paregoric, generally in combination with bismuth, up to slight physiological effects. For very watery movements, bismuth and tannin are relied on. Ulceration of the bowels is treated with paregoric and bismuth with zinc sulphocarbolate, or by copper sulphate, 1-40 grn. every four hours. For chronic diarrhea, zinc sulphocarbolate and bismuth are administered, and, in addition, the following prescription:

Resin Podophyllum .....  $\frac{1}{4}$  grn.  
Fl. Ext. Ipecac..... 2 min.  
Saccharated Pepsin..... 24 grn.  
Cinnamon Water..... 6 fl. dr.  
Alcohol ..... 2 fl. dr.  
Simple Syrup ..... to make 4 fl. oz.  
Teaspoonful after meals.

Fever is combated by means of bathing and potassium bromide, 3 grn. every two or four hours, which is said to act as an antipyretic in these cases. When there is much prostration, the amount of bromide is reduced and sufficient spirits given to keep the pulse up. For anemia of the brain,  $\frac{1}{8}$  drop each of the fluid extracts of hyoscyamus and nux vomica is recommended. In convulsions or meningeal irritation, chloral is never used, but reliance is placed on potassium bromide, 3 to 5 grn., and fluid extract of gelsemium,  $\frac{1}{8}$  to  $\frac{1}{4}$  drop, every two hours until the system is relaxed. Paregoric is given at all times to relieve pain.

**Vomiting in Phthisis**, when induced by coughing, may be completely relieved in 95 per cent. of the cases, according to Dr. Mathieu.<sup>1</sup> His treatment is based on his belief that the fits of coughing that so frequently follow the ingestion of food are reflex in character, being caused by irritation of the terminal filaments of the pneumogastric nerve by the gastric juice. The indication, therefore, is to apply a local sedative to the mucous membrane of the stomach at the beginning of digestion. Various means are employed to accomplish this object. One of the simplest is to have

<sup>1</sup> *Phila. Med. Jour.*, VI, p. 263.

<sup>2</sup> *Med. Sum.*, XXII, p. 187.

<sup>1</sup> *Rec. de Thér.*, LXVII, p. 505.



the patient swallow small pieces of ice, which must not be allowed to melt in the mouth. If this fails, recourse is had to chloroform water, one or two teaspoonfuls, sufficiently diluted to overcome the burning sensation which it produces when administered in full strength. If the cough still persists, bromoform water, in combination with syrup of codeine, is prescribed, the ratio being 100 Gm. (25 dr.) of the former to 30 Gm. ( $7\frac{1}{2}$  dr.) of the latter. The next in the list of remedies is menthol, of which the ordinary dose is 0.15 to 0.25 Gm. ( $\frac{1}{4}$  to 4 grn.). Finally, in the most obstinate cases only, narcotics are employed, generally very small doses of morphine and cocaine in combination. Emphasis is laid on the importance of administering these remedies at the precise moment that irritation of the nerve terminals begins. Of course, if any disorder of the stomach exists as a complication, it should receive appropriate treatment.

**Epilepsy** can seldom be satisfactorily treated at the patient's home, according to Dr. F. Norton Manning,<sup>1</sup> for the reason that very few parents either can or will enforce the discipline that is so essential in the management of those afflicted. The colony system is strongly endorsed as a long step in the right direction, as it places the patient in the most favorable conditions, gives him suitable employment, as much as possible in the open air, withdraws him from loafing and the temptations of cities, drink and sexual vices, subjects him to judicious medical treatment, and thus cures him in some cases, saves him from insanity in most, and almost always prevents or postpones the mental decadence and resulting dementia which, in the ordinary conditions of life, epilepsy almost invariably brings. The diet in epilepsy should be similar in character to that appropriate for the uric acid diathesis, and should be regulated in quantity by the needs, rather than the desires, of the patient. Rather free purgation is important.

The main feature of the medicinal treatment is the regular and continuous administration of the bromides, the dosage to be regulated by the patient's general condition and the variations of his weight. The three most familiar bromides may be used singly or in combination, but the ammonium salt is preferred when large doses are given. Sometimes, more satisfactory results are obtained with the bromides of strontium or lithium, especially the former, which is better borne than the others and causes fewer

constitutional disturbances. With the bromides, it is advisable to combine some such sedative as belladonna, cannabis indica, henbane, antipyrine or even opium in small doses. When there is muscular depression, apathy or feebleness of circulation, arsenic, nux vomica or syrup of the hypophosphites should be ordered. For cardiac weakness or irregularity, digitalis or strophanthus is indicated. If the bromides cannot be tolerated, bromalin should be tried; trional and sulphonal in small doses have also been found useful. In obstinate cases, especially of minor epilepsy, the zinc compounds are advised, preferably the oxide. When bromides fail, ergot is sometimes effective. Frequently, the best results are obtained by changing the medicinal treatment from time to time.

**Acute Dyspeptic Diarrhea**, especially in the adult, requires very simple treatment, according to Dr. H. Jefferson Obrien.<sup>1</sup> Unless the purging has been pretty free, castor oil or calomel should be administered to rid the bowels of all undigested and irritating materials. All solid food should be withheld. For vomiting, ice and small quantities of milk and soda water are advised. Pain, if severe, may be relieved by twenty drops of laudanum and a dram of spirits of chloroform, or by  $\frac{1}{4}$  grn. of morphine hypodermically in extreme cases. If the diarrhea does not cease in two or three days, aromatic chalk mixture or 30 to 40 grn. of bismuth should be given. A valuable remedy in such circumstances is said to be a small enema of starch, 2 oz., with 20 drops of laudanum, every six hours. Chronic diarrhea may often be cured by simple rest in bed and a diet of boiled milk and albumin water. Generally, however, colonic irrigation is required with solution of boric acid, lead acetate, or silver nitrate. Choleraic diarrhea should be treated with morphine hypodermically and stimulation.

In infantile diarrhea, the importance of fresh air is emphasized. Other valuable measures, especially when there is much fever, are bathing, the application of cold to the head, and the flushing of the colon with cold water. Diet requires careful attention, but must be regulated more or less by the individual peculiarities of the case. Great benefit often results from washing out the stomach with lukewarm water. Intestinal antiseptics have not given satisfaction, but bismuth is useful in large doses, at least 2 dr. daily for an infant of one year. In cholera infantum, morphine hypodermically is the main reliance.

<sup>1</sup> *Austral. Med. Gaz.*, XIX, p. 217.

<sup>1</sup> *Med. Dial.*, II, p. 193.



# The Prescription

We wish to have our readers use this department with the utmost freedom. Any question about the prescription or about any substance used in prescriptions comes within its range. We shall do our best to find correct answers for all, and if we fail for lack of information at hand, some one of our readers may be able to give the right reply. On questions of therapeutics or practice we shall not attempt to give any opinions of our own, but read for the questioner what the best available authorities on such subjects have to say upon them. Let every reader resolve his doubts about compatibilities, doses, latest remedies, best methods of administration, dangers of remedies, etc. Send in favorite prescriptions and let others be benefited by what you have discovered. We shall give full credit for all such information. As some persons do not care to have their names appear as the authors of queries, we will refrain from giving names in this connection when requested to do so. Sometimes it is an advantage to have the writer's name published, and in such cases we hope that overdiffidence will not interfere with the right.

**Dr. E. Christianson**, of Chicago, Ill., writes: "Is there a possibility of piperazine, if given dry on the tongue (5 grn. three times a day) for about three months, causing a contraction of the kidneys? Analysis of the urine gives the following results: Color, pale yellow, cloudy; reaction, markedly acid; Sp. gr. 1.015; urea, .018; albumin, none; sugar, none. Microscopical: Large numbers of bacteria, some debris, amon.-mag. triple phosphates, numerous bacilli, chiefly streptococci; some mould-spores; very few leucocytes; potassium hydrate causes large, abundant, flaky precipitate, probably mucus. Upon withdrawal of piperazine, kidneys do not respond at all." We have never heard of piperazine causing any contraction of the kidneys, but as the remedy is a new one, it is not likely that we know all about what it does or does not do. We present Dr. Christianson's letter in full, so that our readers who have had experience with the drug may be able to answer him more fully than we can. If any of them have had any results in its use that would indicate that the doctor's question should be answered in the affirmative we would be pleased to hear from them. Professor Dr. Schweninger, after a good deal of experience in its use, and after giving it for protracted periods, is reported as saying that "no injurious effect traceable to the piperazine was observed in any of the cases, either upon the mucous membranes or upon the tissues into which it was injected."

As the autumn usually brings a large number of cases of malaria, typhoid fever, and hay-asthma, we have this month selected a number of the prescriptions that have been going the rounds of our exchanges and that deal with these maladies. In malarial affections the new remedy known as euquinine has been winning great favor with the profession lately, especially in the treatment of such cases among children and people who cannot bear the bitter taste of quinine. Its tastelessness enables

the prescriber to administer it in powder or suspension, thus avoiding the danger of giving pills that pass through the patient undissolved, as too often happens. Children will lick euquinine down like sugar when given to them with a little of Merck's guarantose. Half a grain of the guarantose will sweeten a dozen or more doses. It can be taken without any sweetening agent, however. For infants, it is best administered in suspension in simple syrup. A drop of oil of lemon, without acid, if added to the syrup, will improve its flavor:

## Chronic Malaria:

Quinine Sulphate.....	1 dr.
Mass. Iron Carbonate.....	1 dr.
Arsenous Acid.....	1 grn.

Make into 20 capsules and give one three times a day.

—WILSON, *Therapeutic Digest*.

## Effervescent Quinine Mixture:

Quinine Sulphate.....	4 dr.
Citric Acid.....	10 dr.
Simple Syrup.....	} of each, 1 fl. dr.
Orange Peel Syrup.....	
Distilled Water.....	to make 20 fl. dr.

Add 10 or more drops to about an ounce and a half of water in which 5 grains of sodium bicarbonate has previously been dissolved, and drink while effervescing.

—Klin-therap. Wochen.

## Malarial Fever:

Quinine Hydrochlorate.....	2 dr.
Dilute Hydrochloric Acid.....	4 fl. dr.
Dilute Hydrobromic Acid.....	1 fl. oz.
Syrup Lemon.....	4 fl. dr.
Water.....	1 fl. oz.

Teaspoonful three times a day.

—ESHNER, *Philadelphia Polyclinic*.

## Intermittent Fever:

Cinchonine Sulphate.....	30 grn.
Fowler's Solution.....	90 min.
Tincture Iron Chloride.....	4 fl. dr.
Syrup Ginger.....	12 fl. dr.
Distilled Water.....	to make 4 fl. oz.

Dessertspoonful after meals.

—TUTT, *Jour. Amer. Med. Asso.*

**Malaria:**

Methylene Blue . . . . . 15 grn.  
 Distilled Water . . . . . 150 min.  
 Inject hypodermically 16 minims.  
 —PARENSKI, *N. Y. Med. Journal*.

**Pernicious Malaria:**

Quinine Hydrochlorate . . . . . 15 grn.  
 Sodium Chloride . . . . . 1 grn.  
 Distilled Water . . . . . 150 min.  
 Inject intravenously.  
 —SHORT, *S. W. Med. Rec.*

**Malarial Fever:**

Quinine Sulphate . . . . . 90 grn.  
 Arsenous Acid . . . . . 1 grn.  
 Acetanilid . . . . . 1 dr.  
 Make 30 capsules and give four during each 24 hours.  
 —DELAFIELD, *Tri-State Med. Jour. and Pract.*

**Anasarca of Malarial Origin:**

Compound Spirit Juniper . . . . . 1 pint.  
 Iron Sulphate . . . . . 2 dr.  
 Potassium Acetate . . . . . 4 dr.  
 Fl. Extract Digitalis . . . . . 2 fl. dr.  
 Syrup Squill . . . . . 4 fl. dr.  
 Tablespoonful three times a day.  
 —MULLONE, *Jour. Amer. Med. Asso.*

**Malarial Toxemia:**

Salol . . . . . } of each, 30 grn.  
 Quinine Sulphate . . . . . }  
 Make 12 capsules and give one every three hours while awake, together with the following:  
 Powdered Ipecac . . . . . 4 grn.  
 Compound Extract Colocynth . . 12 grn.  
 Blue Mass . . . . . 24 grn.  
 Make into 12 capsules and give one night and morning.  
 —TUCKER, *Med. Summary*.

**Typhoid Fever:**

Formaldehyde (40% sol.) . . . . . 30 drops,  
 Elixir Lactopeptine . . . . . 4 fl. oz.  
 Teaspoonful every one to three hours according to the severity of the case.  
 —LIND, *St. Louis Med. Era*.

Creosote Carbonate . . . . . 19 dr.  
 Thymol . . . . . 6 dr.  
 Menthol . . . . . 3 dr.  
 Eucalyptol . . . . . 390 min.  
 Alcohol . . . . . to make 8 fl. oz.  
 This to be used as a stock solution for the preparation of the following:  
 Compound Solution Creosote  
 Carbonate . . . . . 15 fl. dr.  
 Powdered Acacia . . . . . 90 grn.  
 Water . . . . . 4 fl. oz.  
 Teaspoonful every three hours in a wineglass of water, followed by a drink of water.  
 —SIMMONS, *Virg. Med. Semi-Month.*

**Typhoid Fever:**

Rect. Oil Turpentine . . . . . 1 fl. dr.  
 Spirit Juniper . . . . . 30 min.  
 Fl. Extract Hamamelis . . . . . 2 fl. oz.  
 Powdered Acacia . . . . . 12 dr.  
 Water . . . . . to make 6 fl. oz.  
 Dessertspoonful every four hours while awake.  
 —CHRISTISON, *New Eng. Med. Monthly*.

**Hay Asthma:**

Ammon. Chloride . . . . . 4 dr.  
 Tinct. Hyoscyamus . . . . . }  
 Comp. Syrup Squill . . . . . } of each 1 fl. dr.  
 Syrup Senega . . . . . }  
 Syrup Tolu . . . . . }  
 Teaspoonful every three hours.  
 —ESHNER, *N. C. Med. Jour.*

**Asthma:**

Codeine Sulphate . . . . . 2 grn.  
 Wine Antimony . . . . . 11 min.  
 Aromatic Spirit Ammonia . . . . . 1 fl. dr.  
 Comp. Spirit Ether . . . . . 4 fl. dr.  
 Peppermint Water . . . . . to make 2 fl. oz.  
 Two teaspoonfuls as required.  
 —Louisville Med. Monthly.  
 Potassium Iodide . . . . . 3 dr.  
 Fluid Extract Belladonna . . . . . 1 fl. dr.  
 Fluid Extract Lobelia . . . . . 2 fl. dr.  
 Fluid Extract Grindelia . . . . . 4 fl. dr.  
 Glycerin . . . . . } of each, 12 fl. dr.  
 Distilled Water . . . . . }  
 Teaspoonful every two to four hours, as necessary.  
 —BARTHOLOW, *Atlan. Med. and Surg. Jour.*

**Advance Notices**

THE TREATMENT OF FRACTURES. By W. L. Estes, A.M., M.D., director and physician and surgeon-in-chief, St. Luke's Hospital, South Bethlehem, Penn. This book describes the treatment of fractures in a practical and interesting manner, and is replete with original drawings, photographs, and skiagraphs. Printed upon heavy book paper and substantially bound in cloth, containing about 250 pages. Price, \$2.

THE TECHNIQUE OF SURGICAL GYNECOLOGY. By Augustin H. Goelet, M.D., professor of gynecology in New York School of Clinical Medicine, consulting professor of gynecological electro-therapeutics, International Correspondence Schools, Scranton, Pa., etc. This book presents to the reader the technique of gynecological operations in a manner combining simplicity with completeness. The various subjects are individually discussed and graphically illustrated with a large number of drawings and sketches especially prepared. About 300 pages. Price, \$2.

These two works are thoroughly practical, and all details are carefully elaborated. Ready for delivery about September 25. Published by the *International Journal of Surgery Co.*, medical publisher, 100 William street, New York.

A review of these two books will appear in a later number of the ARCHIVES, under the regular department head of Book Notices.

# MERCK'S ARCHIVES

OF

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### Polypharmacy in Prescriptions

AT the opening meeting of the new Therapeutic Section of the Medical Society of the County of Kings, Brooklyn, N. Y., a somewhat spirited discussion arose regarding polypharmacy. In the address of Prof. Hobart A. Hare, strong grounds were taken against the habit indulged in by so many medical men of writing long prescriptions for a whole lot of remedies to be given at a dose. Some of his hearers, who were asked to discuss the paper, took exception to the professor's remarks, holding that polypharmacy was frequently not only justifiable, but advisable. As an evidence of the advantage to be derived from prescriptions of this kind that the administration of single remedies could not give, the case of quinine as compared with Warburg's tincture was considered. It was claimed that Warburg's tincture had stood the test of many years as against quinine, and that most physicians could vouch for the greater efficacy of the mixture as compared with the single chemical body, quinine.

In replying to his critics, Prof. Hare called their attention to the fact that Warburg's tincture is not now made as it was originally, but by many widely different formulas, so that the prescriber never gets

it many times alike, and that, therefore, his critics should say which Warburg's tincture had stood the test of time as superior to quinine. In evidence of how easy it is for physicians to be mistaken as regards the sameness of results and of the supposed greater excellence of one preparation over another, he said that owing to the exhaustion of a certain drug some years ago, and the inability to procure it any more, a substitute product had been sent out which the doctors of the country have been ever since prescribing by the old name.

There can be little doubt of the fact that polypharmacy, as usually followed, is wholly unscientific, and that the criticism upon the promiscuous jumbling of drugs in one prescription is well made. But does it therefore follow that no amount of polypharmacy should be indulged in? Prof. Hare well knows that it is only within recent years that we have been able to prescribe definite chemical organic bodies. To prescribe opium in powder with no other admixture than Nature has made, is to order no less than twenty substances having each some degree of therapeutic effect. The same is true of cinchona. That the effect of using



opium or cinchona is not exactly the same as of using morphine or quinine cannot be successfully denied. There are cases in which the crude drug acts better than the alkaloid, and other cases in which the alkaloid is preferable. Since in many cases in which quinine is given a cathartic is also needed, what harm can there be in prescribing the two together? Indeed, is it not advisable to do so? Why, then, object to the use of aloes in Warburg's tincture? But if coincidental conditions of the system demand the presence of two unlike remedies in a prescription, why may not such conditions sometimes demand far more than two? Indeed, if we are permitted to judge of the medicinal demands of the body by the analogous nutrient demands, then polypharmacy is perfectly justifiable. When we sit down to our meals we seldom or never confine ourselves to one kind of food. We even know that to continue the constant use of a single proximate principle of our food to the exclusion of all others would be fatal. Different tissues of the body demand and must have different kinds of pabulum. May it not be possible that different tissues of the body, when simultaneously diseased, demand the simultaneous administration of different remedies? If experience shows that many remedies, when taken together, act in a way that no one remedy does, who is prepared to say that that composite action is not a new therapeutic action?

But while all this is true, and while it may mean that a scientific polypharmacy is possible, it does not alter the fact that in laying the foundation of sound therapeutics the prescribing of single remedies at a time is the safer and wiser method. When a multitude of remedies are given at once it is usually impossible for the prescriber to know just which, if any of them, is responsible for the good or the bad results that have followed their administration, in any other than the crudest manner. If he

had adequate experience in the administration of each particular item of his prescriptions it might be possible for him to unravel the composite results. If we knew just what effects the separate items could produce it might be possible to determine something about the effects of the combination. But how many remedies are there the effects of which in varying conditions can be, with any degree of accuracy, predicted? It is pretty certain that there are none. Therapeutic science is yet too young to be able to solve problems so complex, and no concerted effort is being made toward their solution. The utter promiscuousness of the polypharmacy of the past, and indeed of much of that practiced to-day, has no reasonable justification. But to assume that all polypharmacy is wrong because this particular type of it is wrong, is hardly justifiable. We have found reasons for believing that in such diseases as are benefited by administering thyroid extract there is an absence in the system of certain elements necessary for its health, and which such administration supplies. How do we know that we may not yet find conditions of disease in which many necessary elements are lacking and that we may require a system of polypharmacy to meet? It is yet far too early for us to tell the fate of polypharmacy, and those who have been trying to do so should wait for the discovery of more facts. Symptom treatment may not be the whole source of the inspiration, as is too generally assumed by those opposed to polypharmacy. The causes of disease may be quite as numerous, upon occasions, as are the symptoms, and may rationally demand as many remedies to dislodge them. The profession is rapidly learning that the cure of the patient is not the casting out of a single metaphysical demon called a disease, but the restoration of a multitude of distorted functions due to a successive series of pathological changes.

# Some Medical Philosophy

By W. C. COOPER, M.D., Cleves, Ohio

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## PART II

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*Medicine is medicine and food is food.* The truth of this is practically denied by the whole profession. The theory deducible from the practice of all doctors is that there is no break in the continuity of food to medicine, and *vice versa*. This has resulted from the doctrine—tacitly accepted through all the past—that at least a large number of drugs are assimilable. The tissue-feeding notion doubtlessly started with the beginning of medicine, and it has prevailed ever since. The increasing scope and potency of the idea have at last found a climacteric response in the erection of a new and exclusive system of medicine—Schuesslerism. It is notable that as this sciostic relic grows in the favor of a class, its fallacy is becoming evident to master minds, so that within a few years a number of eminent investigators have given it a very shaky endorsement, while a few have gone so far as to throw it into rebellious question. The *cautious temerity* of influential medical writers along this line is seen in the following paragraph extracted from an editorial in the *July Public Health Journal*:

“Much discussion has arisen as to whether iron in an inorganic form is absorbed. Many eminent observers claim that it is not, among them Hamburger, who, after many experiments with the inorganic forms, obtained from the feces all the iron he had administered, showing that none of it was absorbed. All agree, however, that organic iron, properly administered, is absorbed. It must be remembered that iron in any form is not assimilated if the intestines and liver be torpid.”

The tremendous force of conservatism is illustrated in the statement “all agree,” etc. Certainly “many eminent observers,” and “among them, Hamburger,” do not. It seems that unless a man is a natural heresiarch, the orthodox impulse will about always, at critical junctures, override the

verdicts of his common sense. The force of preteristic control is markedly noticeable in the lectures of college professors, in text-books, and in our periodical literature. The average medical teacher will devote much more time to the history, etiology, pathology, diagnosis, and prognosis of anemia, than he will to its treatment. Substituting space for time, the same is true of the usual medical writer. The treatment is summed up in two words: “Give iron.” After festooning this ferruginous edict with rhetorical prettinesses having reference to a pet preparation of iron, is not the subject closed?

When the term *anemia* is used in the sense of exsanguinity—the result of hemorrhage—it is not much of a misnomer. Under all other conditions, it is a misnomer. This exsanguinity (it is not a disease) was produced mechanically, and (theoretically) it can be mechanically remedied. Transfusion would be the quick remedy; natural reparation, the slower one. There would be no medicine about it. A diminution of the iron element is not produced mechanically, and cannot be mechanically remedied, as by directly supplying a lack. The lack, in this instance, is no more a disease than it was in the other case, but is a disease *effect*, as the other was a mechanical effect. The first resulted from a solution of continuity; the second from some morbid process within, or behind, the blood. Overcome the trauma and nature will do the rest; overcome the cause of this iron lack, and nature will do the rest, just the same. Prevention (jugulation) is cure.

The reasoning underlying current philosophy, as related to anemia, is necessarily as follows: “There is a lack of red corpuscles in this patient’s blood. This lack is the disease. The way to dissipate a lack is to supply it. Therefore I will give iron.” I submit that this showing is fair.

There is a considerable class of physicians

who reason more deeply than this, but who give iron just the same. They take into account the fact that the patient's food contains an ample amount of iron. They realize that this iron either fails to get into the blood, or if it gets into it, fails to get into the blood factory. They may admit that nature is a better histogenic caterer than is any chemist. They may acknowledge that if the iron electors *should* prefer the chemist's iron, they cannot understand *why* they should ever again become reconciled to nature's iron. All this, but still they will give iron. The reasoning amounts to this: "I see that it is impossible to get iron into the system, therefore I will give—iron!" It was a wrestle between conservatism and common sense, and the former downed the latter—that's all.

Audaciously stating it, true therapeutic philosophy has it thus: It is an immeasurable misfortune that the current method of treating anemia is wrong—radically and inexcusably wrong. If a lack constituted disease, then directly to supply the lack would be directly to cure the disease. Under such conditions, what fascinating sport the practice of medicine would be. In so-called anemia, for instance, we would examine a drop of the patient's blood and ascertain just what element was lacking. A very little figuring would give us the amount needed. All we would have to do then would be to inject the proper amount of this lacking element into the circulation, and presto—the patient is cured! Why does the average doctor waste time, and take risks, by giving his iron by mouth?

There are six prominent reasons why the dogma of tissue-feeding is wrong.

First, it assumes that a class of medicines are foods, i. e., that they are assimilable, that therefore they add themselves to particular tissues. To assume that a substance is at once a medicine and a food, is to propose that heterogeneity and homogeneity are identical. This is a gross self-contradiction.

Second, it postulates that the law of natural selection in the tissues undergoes a modification in a class of ailments, making the chemist's iron preferable to nature's

iron. It is a physiological fact that upon the constancy and invariability of this law, depends life itself. Query: If this law, under whose operation natural iron is refused, accommodates itself to artificial iron as we have it, why should a nearer imitation of nature's iron be a major desideratum?

Third, unless there is such a thing as vitophysical whimsicality, no change in the cell's elective rule could occur. Pathology may be called "crazy physiology," but physiological optimism never loses its leadership while there is life. Disease is not a progressive, malignant counterforce, but an obstructor. It does not *kill*—life is merely stopped by it. Whence the irrefragable verity, as related to individuals: *Life is the rule; death, the exception.*

Fourth, it either assumes that an effect is its own cause, or that the way to remove a cause is to remove its effect. This touches the extremest limit of excuseless absurdity. It is justified only by a recrudescence of boyhood's riparian philosophy. A boy will take a water snake by the tail, and, by a peculiar flick, snap its head off. It would be half pardonable for a boy to apply the philosophy of this to disease.

Fifth, it is completely self-destructive. If the tissue-food zealot could chemically duplicate nature's tissue food (the thing he is trying so hard to do) his occupation would be gone. He might can it for the use of possible Robinson Crusoes, on barren islands—that would be his only hope.

Sixth, no case has ever been helped in any degree by the assimilation of a drug, for the reason that its assimilation would bar it from the drug domain. It would not be a drug, but a food. Food never cures except in a negative sense. Dyspepsia may often be cured by restricting the patient's diet. Let it not be objected that such articles as asparagus are food-medicines, or medicinal foods. Asparagus contains an element which is quite a diuretic. But this element is not a food, for it is not assimilated. If one should incorporate a quantity of potassium acetate in a loaf of bread, would that bread be a food-medicine, or medical food? The food would simply



contain medicine. Food and medicine cannot be identical, for that would rule one of them out of existence.

What is true of iron in relation to the tissue-feeding fallacy, is true, of course, of all other so-called tissue foods, such as phosphorus, lime, etc. Now I do not deny that these agents are medicines, but they are such by virtue of their heterogeneity to the animal organism. Of all of them iron possesses the least claim to medicinality. If it has any medicinal quality excepting astringency, I do not know what it is. Does any one else *know* what it is, in that sense in which he knows that ipecac will produce emesis? Of all the iron preparations, the old tincture of the muriate of iron is conceded to be the best. It is best because its associate, hydrochloric acid, is a positive and doubtless medicine. It is about certain that iron has never done any good, except in conditions requiring an astringent. Its injurious effects upon the teeth, stomach, bowels, nervous system, etc., ought to secure its banishment from the list of internal medicines. It is a good topical hemostatic, and that exhausts its medicinal sphere. In the beginning, I was rather an iron enthusiast, and for twenty-five years I prescribed it lavishly. I declare to you, my reader, that I have never seen any good result from its use which could not be easily accounted for without considering the iron. For the last ten years I have gotten vastly better results in "iron" cases from the use of other drugs. They have uniformly done more good, or less harm—as the case may be—than did the iron. I have very much better success with my anemia cases than I did when I relied upon iron.

I am sure that if our corpuscle counters will drop iron entirely, continuing all their other helpful agencies, they will get better results than they have ever gotten under the use of iron preparations. It cannot possibly be otherwise, unless iron is catalytically beneficent, or is the best "back-stop" in chemical combinations. Experience teaches that it is neither of these, and our best thinkers, including such men as Osler, are beginning to discourage its use.

To summarize, regarding iron and anemia:

1. Iron is not a remedy for this condition, for the reason that if it were, it would work at the right end of it, despite the fact that it is uniformly directed against the wrong end of it.

2. It is a philosophical fact that iron could not cure anemia if it were absorbable; it is a physiological fact that it is not absorbable; it is a practical fact that it does not, never did, and never will, cure anemia.

3. It is an invulnerable fact that the existence of a perfect artificial tissue food would be wholly without excuse, wherefore imperfect tissue foods are worse than useless. Thus, in the end, the iron-anemia hypothesis descends into implacable *irony* and swallows itself.

I cannot decently ask for more space, and therefore will not, at this time, discuss external medication. Under the conditions, this circumstance holds, for me, a doubtful significance. But there is a preparation—the basis of which is, I should think, a petrous product—which is a doubtless and positive remedy in many dermic troubles, and upon which I could dilate in measureless panegyric. Not that this is the only good preparation of its class, but that it is the only *best* one.

Finally, I submit that the question I have attempted to discuss in this paper, namely: the universal habit of treating the effect, rather than the cause, of a large class of diseases, is immeasurably the most important subject that can be brought under the consideration of the profession. It is not extravagant to say its importance is such that a universal adaptation of clinical methods to the natural and self-suggested philosophy of a rational therapeutics would amount to a medical *renaissance*. Whether I have succeeded or not in making the subject worthy of respectful attention remains to be seen. For the sake of humanity and the honor and dignity of medicine I wish in my soul the subject could be brought into general discussion. In the fair, independent discussion of this matter, our brainier, braver, better men have an opportunity to build monuments for themselves and leave a grateful fragrance upon the world.

# Dormiol (Amylene-chloral) in Private Practice

By J. ARNOLD GOLDMANN, M.D., Vienna

THE value of a hypnotic is determined (1) by the reliability and promptness of its action; (2) by the duration of its sedative and soporific effects, and (3) by its perfect innocuousness, particularly as regards by- and after-effects. The Pharmacopœia contains a number of hypnotic preparations with which the object in view may be obtained in a shorter or longer period. These, however, have certain drawbacks, which in private practice, where a constant observation of the patient is in most cases well-nigh impossible, it is desirable to avoid. Some of these rather extensively employed remedies have far more sedative than hypnotic action—for instance, morphine, which, it has been proved, acts chiefly as an anodyne, and in much lesser degree as a hypnotic. Among all the well-known hypnotic remedies chloral and amylene hydrate head the list.

Chloral hydrate—which, as is known, was introduced into therapeutics by Professor Liebreich—is employed chiefly, owing to the fact that it is rather rapidly absorbed by the stomach and intestines, in cases of insomnia from the most varied causes, where it is desirable to obtain a calmative sleep as quickly as possible. In most cases we succeed in obtaining this result in a remarkably short time, often within ten minutes, at the most within thirty minutes; and after the usual dose the sleep produced continues, with occasional interruptions, for from three to five hours. At times there is observed a somewhat retarded respiration and also a moderately slow pulse. On awaking there appears, though not in every case, a moderate but transient headache, a slight feeling of nausea, and occasionally vomiting. It is true that there are often deviations from the good results usually obtained from this remedy, in that before the appearance of the sedative and hypnotic action a more or less prolonged stage of disagreeable excitation manifests itself, and sleep does not set in as promptly as usual, and when at length

it does come is restless and of insufficient duration to give the patient the intended rest and invigoration. In some persons, after repeated use, there is a certain tolerance established, which perhaps does not occur as often as with morphine; and then after a certain time the well-known disturbances of so-called chronic chloral intoxication follow, and these manifest themselves chiefly through disturbed digestive functions, inflammation of the mucous membranes, glandular swellings, cutaneous affections, occasional anomalies of the respiration, typical cramps, weakness of the limbs in general, etc.

Amylene hydrate, which was introduced into the materia medica by Professor von Mering, and belongs to the group of tertiary alcohols, is known to be a prompt sedative and hypnotic, and, like alcohol, is for the most part burnt up in the system. It promptly produces, without previous excitation, a quiet, prolonged and refreshing sleep, and in no way acts unfavorably on the heart or respiration.

It was, therefore, an excellent idea to combine chloral, which is rather toxic and whose unfavorable action is not always readily controllable, with the harmless yet reliable amylene hydrate, and thereby to obtain a preparation which unites in itself all the requirements of a good hypnotic.

Dr. G. Fuchs, the inventor of this combination, has named it "Dormiol," and has reported on its chemical properties in the *Zeitschrift für angewandte Chemie*, 1899, No. 49. Dormiol is a combination of one molecule of chloral with one molecule of amylene hydrate. It occurs as a colorless, oily fluid, of a camphoraceous odor, and of peculiar though not unpleasantly pungent, cooling taste. Dr. G. Fuchs<sup>1</sup> and E. Koch fully describe their physiological experiments with this product; and from their report I will abstract merely the remark that "about 24 per cent. more of chloral in the

<sup>1</sup>*Münch. med. Woch.*, 1898, No. 37.

form of dormiol was borne than when taken as uncombined chloral hydrate. From this the well-founded conclusion may be drawn that the decidedly lesser toxicity of dormiol is referable to the gradual occurrence and slow progress of disunion of the preparation."

I have employed dormiol in twenty-four cases; among these were some patients with whom previously employed remedies either failed entirely or produced, besides hypnotic action, other symptoms which materially diminished the benefit derived from the sleep obtained.

I made the first trial in a man fifty-four years of age, suffering from *inoperable carcinoma of the stomach*, and who for more than three months had used the various known soporifics, at first with varied and soon with entirely negative results. In this case I gave dormiol per enema, because for reasons obvious in a case like this little confidence could be placed in the administration per os. I ordered 1 Gm. (12 min.) of dormiol with 60 Gm. (2 fl. oz.) of gum mixture; at first one-half of this was injected, and instructions were given to use the second half if after two hours no good hypnotic effect had manifested itself. To avoid giving in detail the progress of this case, suffice it to say that during the first week, 0.5 Gm. (6 min.) of dormiol would produce sleep, but not of sufficient duration, so that almost every night 1 Gm. of dormiol had to be administered to attain full and perfectly satisfactory hypnotic action. The sleep was good and quiet, and lasted, with occasional interruptions, between five and seven hours; respiration and pulse remained uninfluenced. About half an hour after the administration of the dormiol, its effect set in; previous unrest, excitation or similar symptoms during the sleep were not observed. On awaking, the patient complained neither of headache nor of any other untoward symptoms, and was highly pleased with the good and prolonged sleep he had had. After the lapse of a week I instructed the patient to try one-half the usual dose; it was found that this, too, had a good and sufficient effect. The patient used dormiol with good soporific results almost every night for nearly two months. It was only a few days before his death that the dose was raised again to 1 Gm. (12 min.) in order to produce a satisfactory sleep.

I have further used dormiol in a case of *pruritus vulvæ*. The patient, a woman forty-three years of age, who was suffering from diabetes, was, of course, treated *lege artis* for the severe general sickness, as well as for the localized accompanying symptoms. In consequence of the long duration and persistency of such affections, often both patient and physician become dis-

couraged, and this regularly results in a frequent change of therapeutic measures and remedies. In spite of the perceptible though very slow improvement, the torturing itching did not improve correspondingly, and the suffering, particularly at night, was excruciating. I tried different sedatives and hypnotics, but their action never produced a good sound sleep. Dormiol, given every evening in capsules containing 0.5 Gm. (6 min.), was the first hypnotic to cause a sound sleep, lasting for almost six hours, and from which the patient awoke quieted and strengthened. Dormiol in this case materially assisted in the cure of the local affection, inasmuch as during the sleep produced the patient could not aggravate and complicate the trouble by scratching the parts, and thus the local treatment could at last do its work unhindered and lead to its object.

In a man who had suffered severely with *gout* for nine years, 1 Gm. (12 min.) of dormiol had a good hypnotic effect within half an hour, as often as it was taken during the severest attacks of pain, and this effect continued for about eight hours. According to the statement of the patient, who had used the most varied hypnotics during past attacks, no other remedy has rendered such prompt and good service, without entailing any untoward consequences, as has dormiol.

In an alcoholic patient, fifty-seven years of age, with *cirrhosis of the liver*, dormiol, given in doses of 1 Gm. (12 min.), when there was great unrest and much increased excitation, brought about, within twenty or thirty minutes after its administration, complete quiet and a good sleep, which lasted several hours. The preparation has thus far been administered fifteen times, and it has never failed in its prompt action. In spite of the grave digestive disturbances, it has in no way affected the patient unfavorably, nor has it had any untoward effect on the respiration and pulse. The patient continues to take the remedy without any repugnance. I have not been able to observe the slightest cumulative action nor any diminution of effect in consequence of tolerance.

Furthermore, this remedy proved very valuable in a case of very inflamed *hemorrhoidal nodules*, accompanied with insomnia. The patient was otherwise perfectly well. For four nights he took 0.5 Gm. (6 min.) of dormiol, with excellent results, and was thus spared the intense suffering which heretofore he had endured nightly.

In a case of *osseous syphilis*, in which there was at times the most intense suffering at night, dormiol served as a real benefactor in consequence of its hypnotic action. The patient, a man of thirty-seven years of age, had used practically all the known hypnotics, but with varied success, most of them failing completely after a time in consequence of tolerance, which was soon established. At the date of the report he had been taking 1 Gm. (12 min.) of dormiol two



or three times a week for about four months with good results, and the preparation had lost none of its original soporific action. No other hypnotic thus far tried had produced sleep for so long a time in an undiminished degree. In this case the preparation apparently acted not only as a hypnotic but also as an anodyne, which latter property, to the best of my knowledge, has never been reported by other observers. In two cases of far-advanced locomotor ataxia, both with extreme insomnia, I obtained from the use of fluctuating doses of 0.5 to 1.5 Gm. (6 to 18 min.) of dormiol, good soporific effects, which in one patient have often persisted for two or even three nights—that is, after taking dormiol one night, he could do without it the following night, and often also the second night after. Also, in these two cases, in spite of the long-continued use of the remedy, I never observed the slightest injurious influence nor indication of any tolerance. The remedy always acts with equal promptness and reliability.

In three cases of severe *pulmonary tuberculosis*, I made a trial of dormiol, though I presumed that, owing to its reliable hypnotic action, it might possibly affect the general condition of the patients unfavorably, in so far as it might suppress the cough and expectoration; but I soon found, however, that the soporific effect of dormiol was a benefit to the patients, and that in spite of the good sleep produced, they coughed and expectorated as usual, but soon again fell into a restful sleep. This is a proof that the vital functions are not interfered with, and that the reflex functions, such as the cough, etc., are not changed, just as respiration and cardiac action are in no wise altered. In view of the easy habituation of tuberculous patients to morphine and other similar remedies, whose cumulative action on gradually increased dosage, as a rule, shows itself, and frequently leads to very unpleasant consequences, dormiol is a very valuable adjuvant in the treatment of tuberculosis, particularly the severer forms.

Dormiol also proved a reliable remedy in several cases of *neurasthenia* of various grades, in one case of so-called *cerebrasthenia*, and in a case of *hysteria gravis*; and I can say that according to my observation in neurasthenic cases, generally 0.5, at most 0.75 Gm. (6 or 9 min.), fully sufficed to produce for the night, and often for the entire following day, sedation from the annoying nervous excitation, as well as refreshing sleep. The patient could very well do without the dormiol for several days, and on resuming the use of the remedy, whenever it became necessary, readily obtained the desired sedative and hypnotic action. In the case of *cerebrasthenia*, occasionally there were moments of abnormally great excitement, which, after the use of 1.5 Gm. (18 min.) of dormiol, promptly gave way to quiescence and calm sleep, lasting for several hours. In the case of *hysteria gravis*,

dormiol was administered at first in doses of 1 Gm. (12 min.), but little could be accomplished with this amount during the severe paroxysms of excitation; and as early as the third day I had to give doses of 1.5 Gm. three times daily. The highest daily dose which I gave was 4.5 Gm. (54 min.), and even this the patient bore perfectly, without showing or complaining of any after-effects on the next or the third day thereafter. Only after eight days was it possible to produce quiescence and sleep to such an extent that the remedy could be discontinued for about a fortnight. After this 0.5 to 0.75 Gm. (6 to 9 min.) regularly sufficed to resist any new attack and to bring about sleep. At the date of the report—that is, two months after first using the drug—the sedation and the absence of attacks continued as a rule from six to eight days, and on the appearance of every exacerbation the patient takes, without any injurious effect, 0.5 Gm. (6 min.) of dormiol, and she states that she can with difficulty do without the remedy, so firmly does she depend upon its prompt action. In psychically affected persons, particularly in those who, in consequence of over-exertion or after a severe sickness, suffer from insomnia, dormiol in small doses, even under 0.5 Gm., acts very well at once as a sedative and a hypnotic, and I have had opportunity to observe that in individual cases, after the use of the remedy for but a few days, natural sleep set in of itself. This latter phenomenon is probably referable to the fact that the quiescence and resulting calm sleep to a certain extent refreshed and strengthened the nervous system, as well as the entire organism; in consequence of this the causes of insomnia are controlled, and often completely removed. In the aged and those suffering from chronic diseases, there is frequently more or less lasting insomnia. In my practice I have repeatedly seen that in such cases of insomnia, dormiol fully meets the expectations, in that even if given for a long time there need be no fear of any harm or habituation. Especially have I observed this in a case of sclerosis in a man of sixty-seven years, who used 0.5 Gm. (6 min.) doses of dormiol regularly for his insomnia, and with very satisfactory results, without, however, experiencing any untoward effects on his diseased heart.

In recapitulating the results of my experience with dormiol I must acknowledge that this remedy has a prompt and reliable hypnotic action, and also an undeniable sedative effect; that it can be depended upon to manifest its action in relatively small initial doses of 0.5 Gm. (6 min.); that larger doses, often up to 2 or 3 Gm. (24 to 36 min.), employed occasionally in individual cases, have no pernicious consequences; that compared with other hypnotics it is well

borne, and, on account of its slow absorption, more harmless, safer, and of more persistent action; that the desired sleep often sets in within a quarter of an hour without preliminary excitation from the remedy, and continues undiminished for several hours; that it has no cumulative action, and even on long-continued use no tolerance is established; that it agrees well with the patients and is taken by them without any repugnance; and last, that it has no untoward or harmful by- or after-effects. Other clini-

cians (see bibliography below) have attained similar satisfactory results.

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## Practical Drug Therapy

By JOSEPH BYRNE, A.M., M.D., LL.B., New York City

NOWADAYS it is not an uncommon thing to hear physicians say that, with the exception of one or two drugs, such as quinine and the like, they have not much belief in medicines. To such a pass have things come that a distinguished author in a recent work on "Infant Therapeutics" felt himself constrained to assume an almost apologetic tone in confessing that he still believed in the efficacy of drugs. The cause of this condition of affairs is not far to seek. There is a great deal more to drug therapy than mere prescribing, and the fault, perhaps, is not so much with the drugs as with the physician.

The fundamental requisites of scientific therapy are: (1) Thorough diagnosis; (2) thorough acquaintance with the remedies; (3) strict attention to the technique of administration.

Without a thorough diagnosis, wherever it is possible, scientific therapy is an impossibility. This word diagnosis should be accorded its full meaning. With a good reason for every step, it means a thorough analysis, a looking through what is secondary, and finding out what is primary and fundamental in the complexity of disturbed functions that each case presents. A happy guess is not a diagnosis, and the very clever offhand diagnostician is apt to make many mistakes.

Having found the primary cause of dis-

turbance, the practitioner will find it to his advantage to treat it exclusively, if feasible, with the appropriate remedy, at the same time informing his patient that his other disturbances are matters of secondary consequence and will probably disappear as the fundamental disorder improves. In this way the practitioner will hold his patient and gain time, which is extremely valuable as affording opportunity to observe the effects of the drug employed. How many patients have physicians lost by their failure to follow some such rule! A case of primary anemia, for instance, comes to a physician complaining of stomach disturbances among other things. Should the physician fail to make a correct diagnosis and treat the gastric disorder alone, it will not take the patient long to find out that "he did her no good."

We do not say that a diagnosis is possible in every case. Such a statement would smack of conceit akin to that of Ambrose Paré, who said that he had attained such perfection in his art (surgery) as to leave nothing to posterity but "a certain small hope to add some things." Cases will and must come in which an ultimate diagnosis is impossible. Here secondary phenomena have to be treated. This does not mean that scientific efforts cease as symptomatic treatment begins. It rather means the opposite; for it requires more study, more skill, and

more experience to treat symptoms properly than it does to treat the original cause of disturbance. Contraindications must be closely watched for and the greatest possible care taken, lest in treating one disturbed function we do harm by aggravating others or injuring other organs. The physician who finds himself compelled to treat symptoms alone resembles a blind guide leading a little child through a crowded thoroughfare. The greatest precaution must be taken at every step, and since he is deprived of sight he must have his other faculties unusually sharp and alert. Symptomatic therapy does not mean unscientific therapy. It may be the only mode of treatment open to us, and it affords the greatest opportunity for the display of genuine skill.

A thorough acquaintance with the remedies is the second essential to drug therapy. This includes a theoretical knowledge of drugs, their doses, characteristics, indications, etc. But it means more; for a practical familiarity with drugs and their workings is absolutely necessary. This is only to be attained by the actual use of drugs. Books, journals, the experience of other men, may be the means of calling our attention to drugs, but all these simply serve the purpose of an introduction. Beyond this they cannot go. The acquaintance has to be cultivated by actual use. Drugs in this respect resemble friends. First impressions, whether favorable or unfavorable, are not to be trusted. Nor is too much weight to be given to letters of introduction. Ultimately we shall be compelled to judge our friends for ourselves and rate them accordingly. This is eminently true of drugs.

The trial of a drug should be thorough and fair. There is, unfortunately, a tendency to cast aside a drug in an offhand way and pronounce it worthless, because of an apparent failure. If a drug comes to our hands well recommended we must give due respect to the opinions of others. If we fail to obtain results we should study the circumstances closer, looking with suspicious scrutiny to ourselves, our methods and diagnosis, lest we come to a hasty and erroneous conclusion. All the world knows the value of a friend, and while we cannot hope to

make friends out of every chance acquaintance, we should at least treat them politely and give them a chance to show themselves. Any one of our acquaintances may, on opportunity, prove himself a true friend. All this might equally be said of drugs. We must not lightly cast aside a remedy, but give it in every instance a fair trial. It is a duty we owe our patients and ourselves if we mean to continue in the practice of medicine.

The technique of administration might be disposed of under the second heading. It is treated separately, however, on account of its importance. Too little attention is given to this subject. In the schools, in the books, and even in the journals it is generally dismissed with a word. How many remedies have failed to give results for the want of proper application or administration! How many physicians have lost great opportunities to relieve suffering or save life simply because of neglect of this subject! An example will make this clear. It is often desirable to administer morphine and not always feasible to give it hypodermically. Should it be given, as is often done, in the tablet form, allowing the patient to swallow the undissolved tablet, it will in most cases sicken the stomach and aggravate the patient's condition. If the tablet be thoroughly dissolved in a teaspoonful of warm water, such unpleasant results will be less likely to happen, while if it be given as Magendie's solution, and not swallowed but held in the pharynx, results may be obtained as innocuous and almost as speedy as if the drug had been administered hypodermically.

As for the administration of drugs to infants and children, whole volumes might be written on the subject. The way in which babies are treated in this respect is little short of cruel. Undiluted whisky is forced down their throats and nasty, ill-flavored mixtures are offered them which they are expected to swallow, whilst a large spoon is jammed almost under the epiglottis. Many a babe might be saved by a little more tact on the part of the physician or nurse, and a little more attention to this subject of the administration of drugs. But enough has been said to show its importance.



Physicians who do not believe in drugs should not be in a hurry to declare themselves. People will listen to them politely and have their own opinions, well knowing that it is no new thing for the workman of a certain type to "quarrel with his tools."

Appended are a few practical remarks on some of the best-known drugs. They are the result of every-day observations at the bedside. Experience is our best teacher. Books, of course, help, but, after all, how far away we seem from our books at the bedside where "no written rule substitutes brains."

*Alcohol* renders splendid service in acute febrile diseases. There is a notion prevalent that alcohol cannot be borne by children. In the presence of fever, a large amount may be taken by children in twenty-four hours with excellent results. By its judicious administration a child can be brought through a four weeks' illness, and at the end of that time look as strong as though it had never been ill. This is notably the case with pneumonias. A respectable authority finds objection to the use of alcohol in the early stages of pneumonia on the ground that alcohol is excreted by and irritates the lungs. The objection seems to be purely theoretical. As a matter of fact, if alcohol be judiciously administered in the presence of fever very large amounts may be given daily, and little if any will find its way to the lungs, as may be seen by the absence of its odor from the breath. In such conditions alcohol offers itself as the first victim of combustion and is rapidly consumed, notably in the liver, the moment it leaves the stomach by absorption. By keeping within the limits of this liver-combustion rate much alcohol may be administered without getting much, if anything, in the way of cardiac stimulation. Hence, if we are administering alcohol for purposes of stimulation, we must remain with our patient, pushing the drug until the proper dose is found by the effect on the pulse.

Another objection to the use of alcohol—viz., cerebral irritation—is to be met on this same ground of liver combustion. It is only the excess of alcohol over and above what is consumed in the liver in a given time that

finds its way to the general circulation and so to the brain. It is only when we seek stimulating effects on the heart that we run the risk of cerebral irritation.

Besides lowering temperature, alcohol by its readiness of combustion saves tissue waste. Less food is required, and consequently less work has to be done in the functions of digestion and elimination—no small advantages in a hard battle with an acute disease.

The administration of alcohol should be begun early in disease and gradually increased, always keeping within the liver-combustion rate until stimulating effects are desired. In children the amount should be rapidly reduced as the fever disappears. It should always be diluted with two or three times its bulk of water. Sugar renders it more agreeable to children, besides adding its own value as a food.

*Opium* always needs watching. Morphine in powder or tablet form, if given to check vomiting, will aggravate it. In such cases hypodermic exhibition gives excellent results, or Magendie's solution—not swallowed, but held in the pharynx.

In the presence of nephritis, morphine must be watched. It has produced convulsions in a case of chronic diffuse nephritis without exudation, where the physician in charge did not suspect the underlying cause. The convulsions promptly ceased on the withdrawal of the drug.

Many babies lose their lives by the injudicious administration of opium. In the gastro-intestinal disorders of summer, children frequently devour such articles of food as raw tomatoes. Acute indigestion ensues. With a ready-made diagnosis of diarrhea, the mother consults the physician or pharmacist. The diarrhea mixture, with its opium or perhaps some opium preparation, is brought into play without further inquiry. The pain is temporarily assuaged. There is a truce for a time, but the tomato holds the fort. Opium has been similarly misused in constipation occurring in the aged with apparent diarrhea. The result is often fatal. Opium should not be given in such cases until the bowels have been emptied. Temporary relief may be had in other ways, such

as by enemata, hot applications, and the like. After the bowels have been emptied, food should be withheld to give the intestines a rest. It is here that the diarrhea remedies may find indication.

Small doses of morphine in almost all cases produce wakefulness. Some patients seem to have a hang-fire idiosyncrasy for morphine. One such case was recently under observation. Hypodermic injections of  $\frac{1}{4}$ - $\frac{1}{2}$  grn. had no effect on him until hours after its administration. His restlessness and discomfort continued until from sixteen to eighteen hours, when he sank into a profound sleep, from which he awoke after several hours much refreshed. Morphine was administered to this patient on ten different occasions with similar results. Curiously enough, this patient's mother exhibits the same idiosyncrasy, but so far only one opportunity has presented itself to make an observation in the matter.

Opium must be used with judgment in cough mixtures. In bronchitis of the acute variety it may check bronchial secretion, aggravate the patient's discomfort, and prolong the attack.

*Quinine* is likely to escape absorption in the presence of high fever, owing to the absence of gastric juice. Where there was but moderate fever, quinine pills and the contents of capsules were recovered by the writer from the stools intact. Thus it is proper to give some weak acid in every instance with quinine.

The dosage of quinine is a matter of importance. Patients taking 8 grn. of quinine four times a day developed genuine chills and fever in New York city this summer. The dose was increased with the desired effect. Whether in this instance the drug was of an inferior grade is an open question, but there were several cases of malaria in the writer's practice where it was necessary to resort to much larger doses than heretofore.

Persons exhibiting quinine idiosyncrasies are not rare. They are usually nervous people, and, if women, are apt to be of the hysterical kind. A lady of thirty years, manifesting hysterical phenomena, has a marked idiosyncrasy. One dose of 2 grn.

given to her without her knowledge produced an erythematous rash with severe head symptoms. This patient has had daily attacks of narcolepsy for the past eight years. Another female patient, also hysterical, shows on the administration of quinine severe head symptoms accompanied by profound cardiac depression. Salicylates have a similar effect on her. The same patient showed symptoms of iodism after a few 5-grn. doses of potassium iodide taken within twenty-four hours.

[In this connection, it is well to note that many clinicians and pediatricists have discarded the ordinary quinine for the superior form, *euquinine*. Dr. Aboleda, of Santander, states (*Boletín de Med. del Cauca*, 1899, No. 146): "Euquinine, because of its tastelessness, is invaluable in the treatment of children; it causes no nausea or disturbances of the digestive organs, while its action on the nervous system is much less than that of quinine."—ED.]

Mixtures containing quinine may be dangerous for children and babies. The writer has seen motor aphasia produced in a child aged four and one-half years by the administration of 12 grn. of quinine taken in a mixture in the course of twenty-four hours. This mixture was composed as follows:

Quinine Sulphate.....	2 grn.	
Arom. Syr. Yerba Santa }		} of each, $\frac{1}{2}$ fl.dr.
Water.....		

The mixture is objectionable not only because of its liability to undergo fermentation, but because the quinine readily settles to the bottom. Doubtless the child got more than its share of the quinine. The result was striking. The child suddenly lost the power of speech for some days. On withdrawal of the drug, recovery was gradual, though at first a great effort was necessary to articulate.

*Digitalis* is a variable drug on the market. The fluid extract seems to be the best preparation for general use. Great care should be taken to see that the patient gets the proper article.

Given by mouth, digitalis in ordinary doses is slow of action, abiding which, the physician, in emergency, must have recourse to quicker stimulants, such as sparteine sulphate, alcohol, and the like. The best way to obviate this slowness of action is by anticipation and timely administration. In an

emergency, a few large doses of the drug should be given at first. It is well to remember in such cases that the effect of the drug on the heart is apparent some time before the arteries begin to contract. Thus it may be used safely in cases in which otherwise it might be contraindicated owing to its effect on the arteries.

The *coal-tar antipyretics* should be used sparingly in children. The writer has seen a boy of twelve years in a state of collapse from a single 5-grn. dose of phenacetin administered by a druggist for a headache. These drugs have their indications, but in general they can be very well dispensed with in treating children. When two members of the group are given together, they act as powerful synergists.

The value of *antidyspeptics* has been questioned quite recently by prominent practitioners. It is certain that the stomach is often treated where the primary cause of disturbance is neglected, as in cases of constipation, anemia, and diseased conditions of the genito-urinary organs. In such cases it would be anything but prudent to attempt a cure of the stomach disturbance until the primary disorders have been corrected. With these exceptions there remain, however, many cases of stomach disturbance where the administration of drugs works well. In rachitic children, for instance, there is almost always present an acid dyspepsia with reddening of the anus and lumps of casein in the stools. The patients suffer from colic and constipation, with occasional attacks of diarrhea. Such a condition is often relieved by neutralizing the foreign acids in the stomach just before feeding. Magnesia answers well in such condition.

It is not wise to treat every stomach disorder with drugs. Disappointment would be sure to follow. The stomach tube demands recognition both as an aid to diagnosis and as the only means of treatment in many cases. If the stomach be not the primary seat of trouble, nor involved secondarily to such a degree as to be considered a diseased condition in itself, it is just as well to regulate the diet and mode of life and treat only the primary disorder. The pa-

tient is to be informed of the plan of treatment, and told that if it should be necessary stomach treatment would follow.

The dose of *strychnine* set down in the books is too small;  $\frac{1}{20}$  grn. three times a day is only a fair tonic dose. H. C. Wood called attention to this in a paper which appeared in the *American Medico-Surgical Bulletin*, September 10, 1898. Since reading that excellent paper opportunity has been afforded the writer of testing the efficacy of frequent hypodermatic injections of strychnine in two bad cases of pneumonia occurring in drunkards. The results were admirable. Strychnine should be better known by the profession. It sounds strange to hear an able surgeon order a hypodermic injection of  $\frac{1}{20}$  grn. of strychnine in the face of a grave emergency on the operating table, though it is not quite so bad as ordering hypodermics of *whisky* to patients in a condition of collapse from the effects of ether.

*Cathartics* are often abused. The writer has seen six compound cathartic pills administered to a weak woman without effect other than causing discomfort and depression. The same case yielded to a properly administered enema. It is a very unscientific practice to give powerful drugs for the relief of obstinate constipation before enemata have been resorted to. Enemata seldom or never fail if given when the hips are well elevated with the patient on the left side. The fluid should be retained for from ten to twenty minutes. After their use a moderate purge is sufficient.

It may be mentioned that it is the odor of castor oil that is offensive and not its taste. If the nostrils be firmly held and the oil neatly deposited well back in the pharynx there will be no disagreeable "taste," more especially if some lemon juice be swallowed before the nostrils are freed.

*Phosphorus* seems to do wonders in rachitis, especially in those cases where the bones bear the brunt of the fight. Instructions should be given to discontinue its use in the presence of fever or gastro-intestinal disturbance. The dose should be not too large. The elixir is an agreeable preparation. The dose is 10 to 20 drops for a child of eight months.



*Guaia-col* has proved a boon to the pediatricist. One cannot speak too highly of it in the treatment of chronic pulmonary disease and general debility. The writer's experience with it covers hundreds of cases of tubercular tendency. The results were striking.

Tuberculosis in most cases is picked up in childhood. The vitality of the young tissues, however, often succeeds in keeping the upper hand of the disease.

The child drags on, coughing now and then, with little or nothing in the way of physical signs in the chest, but all the time puny and miserable. Later in life these young ones have to toe the line with stronger competitors. Then comes the strain, and when the organs are worn and feeble the dormant seeds spring into activity.

It may not be out of place, at the present time, when every one seems to be hunting for and *finding* a cure for tuberculosis, to state that the best work in the treatment and cure of the disease is done by the pediatricist. If people would only attend to his warnings and have every acute illness of children properly treated, more especially measles and whooping-cough; if they would only attend to naso-pharyngeal catarrhs, adenoids, hypertrophied tonsils, and enlarged glands, we should see fewer cases of tuberculosis in the adult. In all cases where there is even a suspicion of a tuberculous tendency, *guaia-col* is *the* drug. Under its use the appetite improves and patients rapidly gain in weight and strength.

Port wine has been found to be an excellent vehicle for *guaia-col*. It disguises the taste completely. In giving *guaia-col* one must not forget the condition of the kidneys as a possible contraindication. The dose ranges from 2 to 5 min. t. i. d. In the administration of this drug, or of creosote, it is doubtful if any benefit is to be derived from doses exceeding 5 min. t. i. d., even in the adult. The practice of running up the dose to see how much the patient can stand is to be condemned. It is ruinous to the kidneys.

*Belladonna* is probably our best remedy for whooping-cough. Its value in this af-

fection has been preached by Jacobi for years. It is now quite some time since the writer's attention was called to its use. After extended trials, *belladonna* is relied on almost exclusively in the treatment of whooping-cough, no other drug being used except perhaps a dose of chloral and bromides at bedtime if the cough is distressing at night, and that only for a few days at the beginning of treatment.

In order to get results with *belladonna* in whooping-cough the drug must be pushed to the physiological limit—that is, until the characteristic flush of the face is produced. This occurs in from five to twenty minutes after a dose ranging from 2 to 20 drops of the tincture. Whatever dose produces the flush must be given t. i. d., and the flush watched for each time.

The writer's experience covers many cases treated in private practice and in the Vanderbilt Clinic. It cannot be said that any case has yet been seen which did not yield in from three to five weeks where treatment was assiduously carried out. Sometimes the paroxysms seemed to increase in number and violence for the first few days of treatment, but after that they grew milder and diminished in frequency to the end.

To one firmly convinced that whooping-cough can be conquered in such a short time, it seems strange to hear physicians say that nothing can be done for this disease, but to let it take its course for weeks and months until the patient dies or partially recovers, only to find himself later in life the victim of chronic pulmonary disease—a crippled member of society.

438 West Forty-fourth street.

**Ferropyrine** has been used by Dr. E. Toff<sup>1</sup> in sixty-five cases of *puerperal hemorrhage*, and in fifty-nine of these cases the effect of the ferropyrine as a hemostatic was remarkable. Besides stopping the hemorrhage it also favorably modified the general symptoms. Ferropyrine is a combination of ferric chloride and antipyrine, but possesses none of the caustic properties of the iron salt, so that it may be used freely even on sensitive membranes.

<sup>1</sup> *Wien. klin. Woch.*, 1900.

# Quinine as an Antipyretic

By J. HOBART EGBERT, A.M., M.D., Ph.D., Holyoke, Mass.

"QUININE is indisputably one of the most efficacious and reliable remedies in the whole list of drugs."—Nothnagel and Rossbach.

While quinine has long been known to possess a positive antipyretic action, and while widely administered in almost all forms of fevers—fevers with and without periodicity; fevers arising from acute inflammatory processes, and fevers unaccompanied by localized inflammation; fevers depending upon sepsis and fevers without sepsis—yet its use is largely empirical, and most clinicians would be unable to tell why they administered it in febrile disturbances (other, perhaps, than those of malarial origin) except to say that quinine is good in fevers generally—a statement, we admit, containing much of truth.

While the reduction of abnormally elevated bodily temperature by the administration of quinine does not always result from the same process of action in different diseases, still the antipyretic action of quinine is sufficiently positive and direct to admit of definite explanation. Quinine is a true antiphlogistic, and hence an ideal antipyretic in most inflammatory conditions, but it is also antimiasmatic and antisapremic. Unlike other questionable antipyretics—vaso-motor depressants—quinine does not depend primarily for antifebrile effect upon depressing the heart's action; in fact, it has a much less marked effect upon the action of the circulatory organs than it has upon the blood itself, and upon abnormal and deleterious substances in the blood.

Any discussion calculated to demonstrate the value of quinine (and the cinchonas) in the treatment of malarial fevers would be superfluous here. From the time the Countess de Cinchon, in the early part of the seventeenth century, brought the first news of the value of "quinquina" (cinchona bark) as a cure for intermittent fever to Europe, and the Jesuits made known its virtues in Italy—from that time to the present, its

value in malarial fevers has been a recognized fact, it not only reducing the fever, but *curing* the disease. Of course there has been, during the intervening years, some desire to know how the remedy acts. Civilized nations are always possessed of such curiosity. The natives of Peru to-day, as before the time of the Countess de Cinchon, make use of simple infusions of cinchona leaves and of the powdered bark for the relief of fevers, and are satisfied with the simple fact that they get the desired relief: but not so with civilized races. And so investigations have proceeded until, to-day, we can reason from cause to effect and from effect to cause.

In 1849 Buchheim and Engel observed that quinine checked the process of alcoholic fermentation, and a few years later Pasteur directed general attention to the significance of low organisms in fermenting infusions. Then Binz, in 1868, published an account of his earlier researches, showing that quinine restrains the growth and activity of protozoa, and in large amounts destroys their life. From this point to the discovery of the *plasmidium malariae* in the blood of malarial patients, and its yielding to the administration of quinine, was but a step. Thus the anti-miasmatic action of quinine stands an indisputable fact, and its antipyretic action in malarial fevers is positive and direct, for it removes, or renders inactive, the condition from which the fever arises.

But quinine is antiseptic; not only antiseptic, but anti-sapremic as well; not only destroying disease germs, but fortifying against the deleterious action which they induce by their presence within the economy. Ptomaines, leucomaines, and toxins yield, in greater or lesser degree, to quinine. Thus in fevers of the toxic or septicemic type quinine is a safe and valuable antipyretic, because it aims at the root of the disorder. In fact, in this type of fevers quinine plays a part second only to that which it fulfils in malarial fevers. It is not to be denied that

in certain special forms of blood-poisoning there are definite indications for other remedies than quinine, but in the series as a whole quinine holds a permanent place as a reliable remedy; for whether in erysipelas or in puerperal fever, or in surgical pyemia, or in poisoning of the system by diphtheritic toxins, or any other infections specially connected with absorption of toxins from within or putrid matter from without, when once a certain gravity of organic disturbance is reached—when the fever is excessively high and the nervous system profoundly agitated and depressed—there is scarcely anything medicinal which offers the same chance of reducing pyrexia, relieving inflammatory complications, and sustaining the vital powers as moderately large and repeated doses of quinine. It is true that in this type of affections, as in others, the antipyretic action of quinine may be augmented, and before dismissing our subject we shall consider the synergists to quinine in this sphere; but in passing we would direct attention to the fact that in retarding the excessive combustion processes leading to the generation of abnormal heat, the action of quinine is greatly aided by the simultaneous administration of alcohol.

In the treatment of infectious fevers and general acute diseases the value of quinine will depend much upon special conditions; nevertheless, its use may be definitely called for in those septic infections which so frequently occur as complications—as the absorption of poisonous materials from the throat in scarlet fever and from the bowels in typhoid. Moreover, special preparations of the cinchona group are available for good service in most of the acute fevers.

There are two most important diseases in which the antiphlogistic action of quinine may be particularly noted, viz.: lobar pneumonia and idiopathic peritonitis. In both these diseases quinine is antipyretic through antiphlogistic effect. It should be administered early, and in the earlier stages rather freely. Rational combinations, however, will greatly aid in obtaining good effects from moderate doses—a matter that will soon receive our more direct attention.

That quinine is possessed of anti-inflam-

matory properties is quite universally admitted. Indeed, it would be difficult to disprove a fact so patent to most observers, but not only do results give their evidence, but a scientific basis for the fact has been established, in that quinine checks multiplication and wandering of the leucocytes, thus mitigating inflammation and the tendency to pus formation. Hence, quinine is of particular value in most inflammatory diseases, especially those of the acute variety, and its use may be said to be contraindicated only by special peculiarities in the phenomena of the disease.

However, we do not recommend its promiscuous use, nor advise that it be given preference over other remedies, even in the treatment of the diseases mentioned. For example, in the first stage of pneumonia, while the cutaneous capillaries are contracted and the skin dry and hot, diaphoretic measures must not be neglected. We are here treating an active congestion rather than a condition of violent inflammation, and much can at once be done to modify the course of the disorder by measures which dilate the peripheral capillaries and promote activity of the excretions. In peritonitis we would strongly recommend the "quinine treatment" in preference to the more commonly employed "opium treatment." Excessive pain may demand the administration of opium or morphine, but cases in which the minimum amount of opiates is given recover, we believe, more quickly and in the best form—i. e., with fewer adhesions and other post-inflammatory sequelæ.

And now as to administration. In the first place, the value of heroic doses of quinine will become less and less apparent as attention is given to rendering more potent the action of moderate doses by rational methods and wise combinations. Doses of over 5 grn. (0.32 Gm.) for an adult are seldom called for, though at times this dose may well be repeated at frequent intervals. Under such dosing, cases of cinchonism will seldom be observed, and even when the indications demand pressing the drug, as in grave fevers of septic origin, the point of tolerance will be found to be further removed by the very exigency of the case.



Unless no other form of the drug is at command quinine pills should be tabooed. Quinine in capsules and in cachets is far preferable, while quinine in suspension or solution is even more regular and certain in desired action.

The activity of quinine, both as anti-malarial and antipyretic, is augmented by combining it with aromatics, cholagogues, and moderate amounts of alcohol, and herein lies the secret of the famous "Warburg's tincture."

The antipyretic action of quinine may further be augmented by combining or administering it in conjunction with remedies (1) which relax the peripheral capillaries, as powder of ipecac and opium; and (2) remedies which exert a definite antifebrile effect through action upon the nerve centers and vaso-motor system, as acetanilid, antipyrine, etc. In combining quinine with Dover's powder it may well be administered in capsules or cachets, and the constipating effect of the opium may be overcome by small doses of resin of podophyllum or calomel. In combining quinine with acetanilid—and this combination gives a most excellent antipyretic for use in the earlier stages of general inflammatory diseases—a fluid mixture is preferable. Of this the following is a good type:

Quinine Sulphate ..... 1 dr.  
Acetanilid (in fine powder) .... 1 dr.  
Aromatic Elixir (or Elixir Calisaya) ..... 1 fl. oz.  
Chocolate Syrup ..... to make 4 fl. oz.

Dose: 1 to 2 teaspoonfuls.

NOTE.—The syrup of chocolate should be heavy—similar to that drawn at soda-water fountains.

It has also been found that the action of small doses of quinine is augmented and sustained by combination with other cinchona alkaloids. The following combination is of particular value—3 grn. being equal in antiphlogistic and antipyretic effect to at least 2 grn. of quinine sulphate:

Quinine Sulphate..... }  
Cinchonine Sulphate .. } of each, 30 grn.  
Cinchonidine Salicylate }

Mix. Divide in 30 capsules.—Dose: 1 to 3 capsules.

NOTE.—The powder should not be made into a mass, but after the ingredients have been well

mixed together they should be put directly into the capsules, and the capsules weighed as made up.

In preparing this paper an endeavor has been made to promote a practical knowledge of the drug under consideration rather than to multiply theories. We have purposely omitted any quotations from "authorities," and append no bibliography. Our ideas have been obtained from many sources, but for the material of this discussion we have drawn from that great teacher, Experience; and the advices herein given are not mere dogmas, but, like the promises in the good old woman's Bible, may be marked "T. & P.," which, she said, meant "tried and proven."

### The Therapy of Angina Pectoris

PROF. THEODOR SCHOTT, of Bad Nauheim, reviews the therapy of this affection in a recent number of the *Lancet*.<sup>1</sup> The treatment can naturally be considered under two heads, viz.: (1) The relief of the attack, and (2) the treatment of the underlying condition between the attacks. The attack itself can, in the majority of cases, be relieved effectually by one of the nitrites. The author prefers nitroglycerin to amyl nitrite, though he admits that there are some cases in which the latter is successful when the former fails. With erythrol tetranitrate the author has not had sufficient experience to express a definite opinion. Antipyrine, formerly much used by the French, is getting more and more into disuse, not only because of its questionable efficacy, but also because it may prove a source of danger. Another excellent measure for the relief of the painful paroxysm is friction of the cardiac area with warm alcohol (preferably containing some salt) or with spirit of mustard, or the application of mustard leaves, etc. Still better is the application of dry heat, and the author has devised a special rubber bag, provided with a thermometer, so that the temperature of the water may be measured and regulated. The temperature should be between 140° and 170° F., and the application of such a bag

<sup>1</sup>*Lancet*, Sept. 8, 1900, p. 728.

and its moving about over the whole surface of the chest, results, in a great number of cases, in either absolute cessation of the pains or in marked relief, at least.

In those cases—and there are such cases—where all the above means fail to produce the desired effect, we must make use of morphine, but we should use it cautiously; never use it too frequently, even if its use seems to be indispensable. It is not only the danger of morphinism—it is because the prolonged use of morphine has an injurious effect on the heart. The iodides are useful during the attacks as well as during the intervals. As the potassium salts have a deleterious effect on the heart, the author prefers sodium iodide; to obviate its irritating effect on the gastric mucous membrane he orders it in milk. The body weight should be watched, because all salts of iodine have a tendency to destroy the albumin molecules of the body; as soon as loss of weight is noticed, the iodide should be discontinued. For stimulating and strengthening the heart, especially during the attacks, the author recommends ether, camphor, and the salts of caffeine. He warns against the use of caffeine-sodium-salicylate, as he observed marked relapse after its use, from which drawback the caffeine-sodium-benzoate seems to be free. While digitalis fails in this affection more frequently than in other cases of heart disease, it must not be discarded altogether; though the pains may not be at all influenced, beneficial effects as a tonic are often observed. Strophanthus is too often a disappointment, while such drugs as convallaria, adonis, etc., are scarcely worth mentioning.

Besides drug treatment, physical therapy is of most signal benefit in a certain class of cases of angina pectoris. But caution is necessary. Too strong exercise or too strong effervescing baths may prove very injurious. Again, more harm than benefit is to be expected if the temperature of the bath be too high or too low; the author gives the limit as ranging between 85° and 93° F. Time of immersion, about fifteen minutes. But it is to be carefully borne in mind that the gymnastic and balneologic treatment is

permissible only in those cases where arterio-sclerosis has not yet made any great inroads. Where the blood-vessels are so rigid that there is apprehension of embolism or apoplexy, or where there is a suspicion of the existence of even a very small aneurism of the heart or aorta, the treatment is contraindicated. For it is well known that every increase of blood pressure, which is one of the results of the Nauheim treatment, might lead to dangerous or fatal consequences. In such cases absolute rest is not only preferable but imperative.

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### Subarachnoid Cocaine Anesthesia

THIS SUBJECT is receiving a good deal of attention in the medical journals of this country and abroad. Prof. Tuffier demonstrated the method to the members of the Thirteenth International Medical Congress, and many physicians are now performing capital operations under subarachnoid cocaine anesthesia. In his article which appeared in *La Semaine médicale* of May 16, 1900, Tuffier states that he has been induced to use the method of subarachnoid anesthesia after numerous experiments. The method is easy and harmless. His operations have been on the lower extremities, perineum, rectum, abdomen, external and internal female genitalia, and male genitalia. In all of his cases (sixty-three at the time of that article, but up to the present time he has used it in about 150 cases) he obtained absolute analgesia, and there were no complications either immediate or remote. The field of operations has now been extended, and includes intestinal, gall-bladder, and kidney operations. The precise technique is as follows: A hypodermic syringe, with an asbestos piston, admitting of sterilization, is used. The needle must be sufficiently long to penetrate easily the space between the skin and the subarachnoid space. This distance varies in length according to the muscular development and obesity of the patient. The needle must be made of platinum and be 9 Cm. ( $3\frac{3}{4}$  inches) long. Its external diameter should be 1.1 Mm. ( $\frac{1}{24}$  inch); internal diameter, 0.8 Mm. ( $\frac{1}{30}$  inch). It must be strong and solid, so as not to bend on coming in contact with the vertebral col-

umn, and its end must have a short bevel. The cocaine solution must be freshly made and perfectly sterile, and its strength 2 per cent. Old solutions must not be used, and this point is of paramount importance. (In a few of the author's trials, where an old, not perfectly limpid, solution of cocaine was used, the analgesia was not complete and perfect; on following this solution with a fresh one the desired result was obtained.)

The solution is sterilized as follows: It is first exposed to a temperature of 80° C. in a water bath for fifteen minutes; then kept in a temperature of 38° C. for three hours; brought to a temperature of 80° C.; then allowed to cool to 38° C. This operation is repeated five or six times in succession, assuring perfect sterilization, and the anesthetic properties of the cocaine are not altered.

The operative technique is as follows: The patient is in the sitting posture, with both arms carried forward. The field of injection is thoroughly aseptized. Locate the iliac crests: an imaginary line connecting the two crests passes through the fourth lumbar vertebra. By injecting beneath that line you penetrate the medulla canal. When this spinous process is located with the left index finger, the patient is told to bend forward, and this bending forward causes a separation of three-fifths of an inch between the vertebra on which you have your finger and the subjacent one. Then it is always wise to tell the patient that he is going to be pricked with a needle, that he will feel some pain, but that he must not move. The injection is made with the right hand, the needle being inserted to the right of the vertebral column, about two-fifths of an inch from the line of the spinous process. The needle goes through the skin, through the subcutaneous cellular tissue, through the lumbar aponeurosis, through the muscles of the sacrolumbar region, and penetrates into the lamellar space, and then into the spinal canal. As soon as the needle is in the subarachnoid space it meets no resistance, and there escapes from it a clear yellow fluid. This is the cerebrospinal fluid, and it escapes drop by drop. *"Never inject the cocaine solution before you have seen the cerebro-*

*spinal fluid escape through the needle."* Then a syringe containing 16 min. of a 2-per-cent. solution of cocaine is attached to the needle, and the injection is made slowly. The needle is withdrawn and the needle puncture is covered with sterilized collodion. In four to eight minutes after the injection the patient begins to complain of a tingling sensation and numbness of the feet. This numbness gradually extends down to the legs, and the sensation to pain and heat disappears. Contact sensation remains, and toward the last the motor system may be affected. In from four to ten minutes after the injection analgesia is usually complete. It is not a partial analgesia, but it is complete and absolute. The patients, when questioned, say they feel only a sensation of contact. One of the patients, whose femur was being sawed off, said he could not tell whether his femur or the table was being sawed. At the close of a lumbar nephrectomy another patient asked how soon the operation would begin. The duration of the analgesia is from one to one and a half hours, and is sufficient to complete the most laborious operation.

In subjects whose spinal column is deviated, as in scoliosis, the line of the spinous processes can only be found with difficulty, and owing to the fact that the vertebral laminae have lost their normal relations, the puncture may be difficult. This obstacle, however, can be overcome by a little patience. If the needle strikes against a vertebral lamina, its point is to be changed either in an upward or downward direction; the needle is not to be pulled back and forth, as there is danger of breaking it. The needle is to be removed and a puncture made either higher up or lower down. The solution must be injected in the subarachnoid space, and there is only one sign which tells us with certainty that the needle is in the canal: that is the escape of cerebrospinal fluid—pure cerebrospinal fluid, unmixed with blood. As to dangerous by- or after-effects, the author says that he has never seen a serious accident. Patients have a feeling of weight in the epigastrium, or are anxious, nauseated, vomit frequently, have headaches, which are sometimes light, sometimes



very severe. But these symptoms usually disappear within twenty-four hours. Occasionally the headache is so severe that it causes insomnia and does not disappear before the end of forty-eight hours. Occasionally there are noticed dilatation of the pupils, profuse sweats, shaking of the limbs, and in quite a large proportion of cases there is a severe chill ten or fifteen minutes after the injection. The age of the author's patients ranged from twelve to sixty-nine years, and he says that sex and age seem to have no influence on this method of anesthesia.

In conclusion, the author states that should the cocaine injection, from one cause or another, fail to produce anesthesia (the solution being old, faulty technique, etc.), a general anesthetic, such as ether, can immediately be administered. In his first experiments before he mastered the technique it often happened that he had to etherize the patients after the injection, and it seemed to him that the cocaine injection rather facilitated the ether anesthesia and made it less disagreeable.

Dr. J. B. Murphy,<sup>1</sup> of Chicago, has operated in three cases under this method of anesthesia. The first was a case of pyosalpinx, with history of rupture into the intestine. Fifteen minims of a 2-per-cent. solution were used. The operation was commenced eight minutes after the injection, and during the entire period of the operation, patient experienced not the slightest pain, though conscious of being handled. She was nauseated and vomited some six minutes after the operation began, but her pulse ranged between 60 and 75. Her temperature in the evening reached 102°, but became normal, and no other unpleasant symptoms made their appearance.

In the second case the Schede operation for varicose veins was performed; 13 min. of a 2-per-cent. solution were used, the analgesia being perfect.

The third was a case of sensitive ulcerated stump, following amputation for diabetic gangrene. Eucaïne was used in this case instead of cocaine. It was twelve minutes before analgesia was complete, and ten min-

utes after the beginning of the operation sensation began to return. On the whole, it was not as satisfactory as cocaine. The author hopes that perhaps the nausea may be controlled by the addition of atropine to the cocaine.

In another publication Dr. Murphy<sup>1</sup> reports six additional cases: Laparotomy for tumor in the ovary, operation for appendicitis, arthrectomy of left knee-joint, curettement for suppurative epididymitis, Schede's operation for varicose ulcer of leg, and operation for strangulated femoral hernia. In all cases the analgesia was complete, the operations were performed successfully, and there were no bad after-effects. Nausea and vomiting were usually present. Remarkable on the last case—that of strangulated femoral hernia—the author says he believes that this method of anesthesia has very decided advantages in cases of intestinal obstruction; first, because the patient is quickly prepared for operation; second, the danger of inhalation pneumonia is nil; third, the prolonged depression so general in this operation from general anesthesia is avoided.

Dr. S. Marx<sup>2</sup> has employed this method in five cases of labor with the purpose of annulling the pains, and he is very enthusiastic over it. In each case the analgesia was complete, the child and the after-birth were born without the mother's knowledge, and the parturients were very thankful. The disagreeable symptoms noted were: nausea, vomiting, severe headache, throbbing and fullness in the head, chilly sensations, and elevation of temperature during the first day. But the author believes that these disagreeable after-effects can be readily controlled by nitroglycerin ( $\frac{1}{100}$  grn.), with or without small doses of morphine. Whether any remote dangers are to be apprehended there has not been time to judge; but as far as his experience goes the author believes that in lumbar cocainization we have a method which is of the greatest value in producing analgesia, which checks almost entirely the pains of labor without the least danger to mother or child.

<sup>1</sup>*Jour. Amer. Med. Assoc.*, 1900, p. 574.

<sup>1</sup>*Chicago Clinic*, September, 1900.

<sup>2</sup>*Med. News*, Aug. 25, 1900.

These enthusiastic reports are somewhat marred by a warning from Prof. August Bier,<sup>1</sup> who was the first one to introduce or if we decide to give priority to Dr. J. Leonard Corning, at least to popularize the method of medullary cocainization. He says the method is not yet ripe for acceptance into general practice. The technique is not yet perfect, and we are not yet sufficiently familiar with the untoward effects, immediate and remote, which may show themselves. We have yet to study how to prevent or alleviate the disagreeable by-effects which are almost invariably present, such as vomiting, headache, and elevation of temperature. We must endeavor to replace cocaine with some non-toxic substance. This the author has already done in the case of animals, as will be presently reported by his assistant, Dr. Eden. Further, the author cautions against injecting more than  $\frac{1}{4}$  grm. at a time.

### Pulmonary Edema

ACCORDING to Prof. J. Teissier,<sup>2</sup> the term acute pulmonary edema is to-day generally restricted to a distinct symptom-complex, having its own individuality and characterized by a sudden effusion of serum into the alveoli and the interstitial tissue which envelops them, over a more or less extensive surface. This condition is capable, by its very suddenness and intensity, of rapidly endangering the life of the patient if its extension is not checked by energetic intervention. It is because of these features that certain authors have suggested the name of serous apoplexy of the lungs. Another character of the acute, which differentiates it from the various forms of chronic pulmonary edema, is its actively congestive origin, which induces from the first instant an abundant effusion which escapes by way of the bronchial tubes. Nevertheless, this intense congestion is entirely independent of any inflammatory process, as it has been demonstrated that the serum contains no trace of fibrin.

It is only within the last dozen years that the attention of physicians and physiologists has been persistently directed to acute pul-

monary edema, although the clinicians, beginning with Laënnec, commenced three-quarters of a century ago to devote to it a chapter of their writings. By 1855 the condition had been thoroughly described, but for some unexplained reason was thereafter almost completely ignored until 1887. Since then numerous and important investigations have been undertaken with a view to elucidate the origin and nature of the affection.

The symptomatology is well defined and unequivocal, as is admitted to-day by all clinicians. First, there are the slight premonitory signs—tickling of the throat, accompanied by a certain degree of painful intrathoracic tension, suggesting the involvement of the pneumogastric nerve. Dyspnea follows, mild at first, then agonizing, finally paroxysmal, while at the same time an incessant spasmodic cough develops, with abundant expectoration of frothy serum, often rose-tinged from the associated blood. Auscultation of the chest reveals a multitude of fine rales over the whole edematous region. From this moment the situation becomes most critical. Sometimes, thanks to active treatment, improvement sets in, and restoration to the normal is completed in a few hours. More often, however, the course of events is toward a rapidly fatal termination; at the end of three or four hours, sometimes even earlier, the bronchial tubes become more engorged, the rales multiply, the pulse increases, distension of the jugulars occurs, and the asphyxia assumes a menacing character. Then the heart-beat becomes intermittent and arrhythmical, the diaphragm ceases to act, cyanosis develops, and profuse perspiration breaks out. Sometimes convulsions precede the final arrest of the heart, which occurs generally in a sort of tetanic systole. Death is ushered in without sensible elevation of the temperature, which may even be subnormal. Such is, in brief outline, the clinical picture of acute edema of the lungs. So far there is no room for discussion, as the phenomena are well known and generally admitted. Quite otherwise is the case, however, when the question of etiology is raised.

At least three important influences are concerned in the production of acute pul-

<sup>1</sup>*Munch. med. Woch.*, No. 36, 1900.

<sup>2</sup>*La Sem. mèd.*, XX, p. 255.

monary edema: an intoxication of some kind, an irritation of the peripheral nerves, and a mechanical disturbance of the circulation. Owing, doubtless, to the varying prominence of these factors in the experience of different observers, three leading theories of the etiology of the condition have received more or less favor. First, the toxic theory, advocated chiefly by Brouardel and Debove, which regards acute pulmonary edema as a result of auto-intoxication almost always symptomatic of interstitial nephritis. Second, the angio-neurotic theory, of which Huchard is the leading defender, which finds the origin of the trouble in an intense dilatation of the pulmonary capillaries under the influence of an excitation of the cardiac plexus or of the sensitive terminals of the pneumogastric. Third, the purely mechanical theory under its two leading forms of ventricular cramp, as suggested by Grossmann, and of failure of ventricular equilibrium, as preferred by Welsch. That all these theories are partly true is a justifiable conclusion derived from a study of the available facts supplied by clinical experience, pathological examination, and experimentation. From these data acute pulmonary edema appears to be the consequence of a complex pathogenic process in which infection or intoxication produces conditions, in default of which the nervous irritation or the mechanical disturbance would be insufficient to determine the serous inundation of the lungs. Although this explanation might seem inapplicable to the so-called primary edemas, yet, as a matter of fact, they occur only in patients afflicted with some organic lesion, old infection, or constitutional dyscrasia—generally alcoholism.

The results obtained by the author, after numerous experiments on dogs, largely justify the view of acute pulmonary edema held by Laënnec, Andral, and other observers of the early part of the century. The condition is very clearly distinguished from chronic, passive, or hypostatic edema, not only by its etiology, symptomatology, and pathogeny, but also by its peculiarly grave prognosis, death usually occurring within a few hours. The fatal issue is not always due to failure of respiratory capacity, as this

may be even increased. In such circumstances asphyxia results from cramp of the muscular fibers of the bronchial tubes and from the rigidity of the lung, which hinders expansion, and, consequently, aëration. However, the course of events is not always equally unfavorable. In the subacute and partial forms of the trouble, spontaneous resolution sometimes takes place. It occasionally happens also, particularly in cases of gout or Bright's disease, that the pulmonary edema rapidly disappears on the development of some fresh lesion. Edema of a reflex nature is at times dissipated by removal of the primary source of irritation. Nevertheless, apparent recession of the fluxion is to be regarded with suspicion, as, in such circumstances, relapses are common and often fatal. The prognosis of an attack of acute pulmonary edema depends less on its cause than on the promptitude with which the diagnosis is made and appropriate treatment instituted. Although recognition of the condition is usually easy, there are rare cases, without expectoration, which might be mistaken for asthma, angina pectoris, or pulmonary embolism. In such circumstances the diagnosis is based on the character of the rales and their failure to be displaced during the paroxysms of coughing, a peculiar respiratory murmur often accompanied by a little bronchophony, and at times a sonorous percussion note around the area of most numerous rales.

Owing to the uncertainty and dispute concerning the pathogeny of acute pulmonary edema, the development of a rational therapy has made little progress. The most effective remedial measure, bleeding, although deducible from the preceding considerations, was first employed empirically. It is not contraindicated by either the weakness or irregularity of the pulse or the extreme pallor of the patient. A large amount, 300 to 400 Gm., of blood should be abstracted. On account of the nervous factor in the production of the morbid state, the use is indicated of revulsives over the nerve trunks or the cardiac plexus. Galvanism of the vagus has been suggested. Internal medication has given very indecisive results. The hopes based on the antagonism



of atropine and muscarine have been shattered by trial of the former drug. Amyl nitrite, which might relieve the ventricular spasm indirectly through extensive vasodilatation, is contraindicated by the fact that it is itself capable of inducing pulmonary edema. Although this disadvantage seems not to attach to the oxycarbonated nitrite of amyl, the present difficulty of procuring the remedy acts as an effectual bar to its employment. The rectal administration of carbonic acid, after the method of Bergeon, has been followed by good results. Certain other remedies have been recommended as auxiliary to venesection, such as ergot and apomorphine, strophanthus if the heart fails, ipecac when there is pre-existing bronchial catarrh, strychnine when the bronchial muscles, and especially the diaphragm, are threatened with paresis. The dangers attending the administration of morphine in this affection are now admitted by all. Some measure of success in desperate cases has been achieved by desperate expedients, such as puncture of the right auricle or aspiration of the accumulated fluid through a tracheal opening.

**Anemia** is believed by Dr. H. Senator<sup>1</sup> to be almost, if not quite, always a secondary condition, the underlying causes of which may generally be discovered by thorough investigation. Nevertheless, he admits that in the present state of our pathological knowledge we are obliged to regard certain forms of anemia as essential, and to treat them directly. These essential forms are three in number, chlorosis, progressive pernicious anemia, and mountain sickness. In the treatment of the first, chief reliance is placed on iron, unless it exercises an unfavorable influence on the digestive organs, in which case hydrochloric acid is often of great benefit. Sometimes alkaline, particularly alkaline-muriatic, iron waters, such as Emser or Gleichenberger, are well-borne and useful, and prepare the patient for the real iron waters, which, if properly used, are much less disturbing than the pharmaceutical preparations. By proper use is meant that at the beginning of a course of

treatment the water should be taken in the morning only, on an empty stomach, and in comparatively small quantities, 250 to 300 Gm. (8 to 10 oz.), the first portion, at least, of which should be warmed. Later, the morning dose is slowly increased to 500 Gm. (1 pt.) and the water is gradually substituted for other drinks during the day. The best results from iron waters are naturally obtained at the springs, where there are numerous auxiliary agencies to contribute to a cure. For home use, the artificial pyrophosphoric acid iron water is recommended.

Although the author has failed to observe the special advantages claimed for the albuminates of iron, he is satisfied that the remedy is generally much better borne when combined with an organic acid than with a mineral acid. Of the latter preparations, he prefers the ethereal tincture of the chloride when marked nervous symptoms are present, and the ammonio-chloride when gastric catarrh is threatened. If iron fails, or is impracticable, arsenic and quinine are frequently of great service.

Of the newer methods, the sweat cure is strongly indorsed as often sufficient in itself and, at other times, as a powerful adjuvant to the iron treatment. The sweating is produced, not by the use of drugs, but by means of hot baths, water, air, sand, etc. Bleeding is not well thought of, because of its obvious inconveniences and dangers, and because its efficiency is believed to be largely or entirely due to the induced sweating.

Although the author has never seen the complete cure of a case of progressive pernicious anemia, he has often seen unmistakable improvement follow the institution of hygienic and dietetic measures, combined with the administration of large doses of arsenic and quinine. From oxygen and preparations of bone marrow, he has had no very striking results.

For mountain sickness, the author has little to recommend except descent to a lower altitude. The breathing of oxygen or compressed air is mentioned as of possible utility.

<sup>1</sup>*Berl. klin. Woch.*, XXXVII, p.653.

# PROGRESS IN MATERIA MEDICA

**Protargol** is highly esteemed by Dr. Herman B. Sheffield<sup>1</sup> as a local remedy for *vulvo-vaginitis* in children. Although the strength of solution indicated depends on a number of circumstances, he usually employs 2-per-cent. in gonorrheal cases and 1-per-cent. in others. Sometimes greater dilution may be required by a very sensitive mucous membrane and, on the other hand, 5-per-cent. has been used without any ill results. The exuding pus is first wiped from the orifice of the vagina, which is then repeatedly but gently syringed with a 5-per-cent. solution of sodium bicarbonate until no more pus can be washed out. From half an ounce to an ounce of the protargol solution is then introduced by means of a syringe and soft rubber catheter, and is retained in the vagina about five minutes. This process is repeated from three to five times daily. For urethral involvement, the following prescription is used:

Protargol.....	} of each, 12 grn.
Iodoform.....	
Peruvian Balsam.....	6 drops
Extract Belladonna.....	1 grn.
Cacao Butter.....	sufficient

Make 12 crayons, 2 inches in length and  $\frac{1}{8}$  inch in diameter. One to be introduced into the urethra once or twice daily.

This treatment is said to be unirritating and to be followed by the disappearance of the gonococci and most of the discharge in about ten days, after which weaker solutions are used. The entire duration of treatment is said to be about three weeks. Of forty-six cases, all but one recovered without developing any complication whatever.

**Physostigma** (or Calabar Bean) has been used in two extremely violent cases of *chorea* by Dr. Jos. W. Russell.<sup>2</sup> The results were better than those usually obtained by the treatment with arsenic. In the first case, a boy of fifteen, the movements were so violent that a detailed examination was impossible. Boards had to be placed along the sides of the bed to prevent the patient from falling out. There was considerable difficulty in swallowing. One night the movements became so severe that the doctor was called up, and he had to keep the boy under chloroform for some time; the movements were thus stopped for a few hours, but in the

morning these were as bad as ever. Physostigma was then ordered in doses of  $\frac{1}{16}$  grn. of the extract three times a day, and from this time the movements rapidly subsided. About five days after commencing the treatment the calabar bean had to be stopped, as the boy began to suffer from hallucination; in about three weeks there was complete cessation of the choreic movements.

The second case was a boy of nine, who had been treated for three weeks with chloral and arsenic unsuccessfully. His condition was very serious; the movements were ceaseless and of great violence; he had passed several entirely sleepless nights, and feeding had become impossible owing to the violent choking produced by the entrance of food into the larynx. One-sixteenth of a grain of the extract of physostigma was ordered three times a day, in conjunction with hot baths and massage. Very marked improvement set in at once after beginning this treatment, and in about two weeks the boy was free from every trace of chorea.

**Orexine Tannate** was used by Dr. Prüssian,<sup>1</sup> of Wiesbaden, in thirty cases of *anorexia*. The patients were all children, ranging in age from twenty-two months to fourteen years. Some of them suffered from simple anorexia; in others the anorexia was a symptom of tuberculosis and chlor-anemia. To young children—up to six years of age—the remedy was given in the form of chocolate-coated tablets, 4 grn. each, from one and one-half to two hours before meals. To older children it was administered in powder form, 8 grn. to the dose. All the children took the drug readily and willingly, an important factor in a stomachic intended for children's use. These children all belonged to the poorest class of dispensary patients, and in view of this fact the gratifying results obtained speak all the more strongly for the efficacy of the drug. Of the thirty cases under observation, twenty-three were distinctly benefited; but in seven cases no marked improvement could be discerned. These last seven suffered with well-advanced tuberculosis (hemoptysis) and anemia, and were besides entirely neglected by their parents. In the other cases the appetite-stimulating effect of orexine was quite apparent, and the concomitant increase in weight was in some cases quite remarkable. One anemic girl of thirteen, who had suffered for over a year with complete ano-

<sup>1</sup>N. Y. Med. Jour., LXXII, p. 189.

<sup>2</sup>Birming. Med. Review, Sept., 1900.

<sup>1</sup>Zeitsch. f. prakt. Aertz., 1900, p. 613.

rexia and consequent loss of flesh, gained  $4\frac{1}{2}$  lbs. in two weeks, though remaining under the same unfavorable home circumstances. In two cases of pulmonary phthisis, in which all stomachics had long ceased to be of service, orexine tannate worked positively and well, and within two weeks the patients—children of four and five years respectively—gained 24 and 30 oz. in weight. In the other eleven cases of anemia the increase in weight during the first two or three weeks was from 7 to 20 oz. per week, according to the age of the child.

As to the rationale of the action of orexine, the author's experiments have demonstrated that it consists principally in increasing the secretion of hydrochloric acid, though it is not improbable that it also increases the motor activity and absorptive power of the stomach.

**Lustig's Plague Serum** is warmly endorsed by Dr. N. H. Choksy,<sup>1</sup> after an extended trial in the Arthur-road Hospital of Bombay. During the first series of observations, from March to November, 1898, moribund and convalescent patients were not injected, as the results in these two classes would have been of little significance. Of the 403 who were subjected to the treatment, 154 recovered, or 38.2 per cent. At the same time 1190 patients received treatment by ordinary methods with recovery rate of only 19.5 per cent., which was about the same as that in other large public hospitals. In the second series, every other patient, irrespective of condition, was treated with serum. The 480 thus handled showed a recovery per cent. of 31.67 as against 20.42 for the equal number of control cases. By ruling out moribunds and convalescents as before, these percentages become 39.62 and 20.21 respectively. In other words, the serum treatment possesses over ordinary methods an advantage of 55 per cent. when used in all cases, and of 96 per cent. when moribund and convalescent ones are excluded.

The action of **Atropine** was recently discussed in a paper by Dr. R. D. Rudolph<sup>2</sup> before the Canadian Medical Association. From experiments made on animals the author finds that the drug directly stimulates the heart, and as a result raises the blood-pressure. He thinks that the maximum dose of  $\frac{1}{320}$  grn. is too large, unless used as an antidote or in other emergencies; as a rule, the dose should not exceed  $\frac{1}{1600}$  grn. He also spoke of its favorable action

in catarrhal pneumonia of children, and its employment before anesthesia to ward off danger.

Dr. Blackader, who discussed the paper, expressed his doubts as to atropine being a direct stimulant to the heart muscle, and thought it inadvisable to administer a drug that will paralyze nerve endings when our object is to stimulate the heart's action.

**Castor Oil** has been used successfully in *neuralgia* by Dr. Alva W. Knotts.<sup>1</sup> The patient had been suffering for years with supraorbital neuralgia, and had used numerous restoratives, and probably the entire list of anodynes and analgesics; but the attacks would recur with their usual severity and regularity. She was given a teaspoonful of the following mixture:

Castor Oil.....	} of each, 3 fl. oz.
Glycerin.....	
Camph. Tr. Opium .....	4 fl. oz.

She has been using the mixture for two months, and during that time has had but one very mild attack. Her general appearance is improved, and she is also rid of the constipation, with which she was a chronic sufferer.

**Palladium Chloride** in the treatment of *pulmonary tuberculosis* is reported upon favorably by Dr. Cohen.<sup>2</sup> He was led to use this chemical ( $\text{PdCl}_2$ ) on account of its well-known powerful affinity for hydrogen and its consequent oxidizing and antiseptic power. A 32-per-cent. solution was administered in doses of 5 to 10 drops, well diluted. Patients who had taken the remedy for a considerable period had increased in weight, and in a number of cases the fever, cough, and active physical signs disappeared.

**Calcium Carbide** is highly lauded by Dr. Grusden<sup>3</sup> in the treatment of *inoperable carcinoma of the uterus*. In fact, the author states, in cases over which you cannot have perfect control, like dispensary patients, this is the only available method. The use of the remedy is as follows: The vagina and the cancerous surface are made as dry as possible (this is an important point); a piece of the carbide is applied to the ulcerated surface and a tampon placed over it; this holds the carbide in place and also protects the vagina. In two or three days the patient is given a copious douche, which washes away the remains of the carbide and the necrotic tissue. The vagina is then dried and the ap-

<sup>1</sup>Lancet, II, 1900, p. 207.

<sup>2</sup>Med. News, 1900, p. 476.

<sup>1</sup>Jour. Am. Med. Assoc., 1900, p. 570.

<sup>2</sup>Zeitsch. für Tuberculose, 1900, No. 7.

<sup>3</sup>Münch. med. Woch., 1900, No. 24.



plication is renewed. This remedy has a remarkable effect on the exuberant, bleeding surface, on the fetor, and on the discharge. The moral effect on the patient is also very good.

It cannot be asserted that the treatment is free from all unpleasant by-effects. For instance, to some patients the application of the caustic is very painful; then, again, the acetylene gas which is formed sometimes finds way through the Fallopian tubes into the peritoneal cavity, where it causes griping pain. But, after all, these accidents are not dangerous; they are simply unpleasant. The production of the acetylene gas can be reduced to a minimum if the vagina and uterus are kept thoroughly dry; the tampon should be so arranged that the gas may easily escape through the vagina.

The thermo-cautery should never be used in conjunction with the carbide treatment, on account of the danger of explosion of the acetylene gas.

**Ichthyol** is recommended by Dr. T. G. Lusk,<sup>1</sup> of the New York Post-Graduate Medical School and Hospital, for relieving the pain and preventing the rupture of vesicles in cases of *herpes zoster costalis*. An astringent, antiseptic drying preparation suitable for the purpose may be made as follows, says the author:

Ichthyol .....	2 fl. dr.
Magnesium Carbonate .....	2 dr.
Zinc Oxide.....	2 dr.
Water.....	to make 4 fl. oz.

This mixture should be sopped on and a binder applied to prevent rupture from friction. A 5-per-cent. ichthyol-collodion may also be used with advantage.

**Calcium Sulphydrate** is recommended by Dr. Charles G. Cumston<sup>2</sup> as a surgical *epilatory*—to remove the hair from the field of operation. Shaving is frequently difficult, especially of the scrotum, vulva, and anus, and the paste originally recommended by Raybaud is very useful. The formula for making this paste is as follows: Take 2 parts of freshly-slaked lime, from which all the gritty particles have been removed, and mix with 3 parts of water. Through this mixture pass a stream of sulphuretted hydrogen; a pasty mixture of a bluish-green color is obtained, having a slight odor of sulphuretted hydrogen; it is not in the least caustic, and may be handled without fear. It should be kept in wide-mouthed, brown-glass bottles, well corked, as the carbon di-

oxide of the air decomposes it readily. The way to apply it is by spreading a thin layer with a spatula or spoon-handle. If the hair is very long, it may be clipped off with the scissors first. The paste is left on for five minutes, and then with tepid water and a towel it is removed by gentle friction. The skin will then be found to be completely free from any trace of hair and better shaven than by the sharpest razor. The paste is absolutely devoid of irritating properties. It should not be touched with hands wet with bichloride, as the hands will get black from the formation of the black mercuric sulphide.

**Potassium Carbonate** is considered by Dr. J. N. Hunsberger<sup>1</sup> the sovereign remedy in *acute rheumatism*. As a modifier of this disease there is no drug comparable to it. Far from being irritating to the digestive organs, it has a particularly soothing effect on a disordered stomach, and will stop vomiting if given in 1 to 2 grn. doses every half hour or hour.

The good effects of the drug may be summarized as follows: It markedly increases the amount of urine and renders it alkaline; converts the free uric acid into soluble urates which are rapidly eliminated; relieves pain quickly, and seems to modify the inflammatory process, so that the author has never been obliged to give morphine; has a sedative action on the heart, and under its administration cardiac and arthritic complications rarely occur. The author has met with no heart trouble, nor with any stiff or thickened joints remaining as a sequel, since using this treatment. The drug is administered in from 10 to 15 grn. doses every two hours until there is an amelioration of the symptoms, and then every three or four hours during the entire course of the disease, the dose being increased or diminished as indicated. It acts best on an empty stomach, and should never be given after eating.

Regarding the salicylates, the author condemns them in toto in unmeasured terms, stating that they are not only harmful, but absolutely contraindicated, and that some cases of death from cardiac weakness can be easily traced to their long-continued use.

**Antivenene**, or antivenomous serum and calcium chloride, constitute, according to Prof. Joseph McFarland,<sup>2</sup> a very efficient antidote against the *poison of venomous snakes*. He has studied the subject thoroughly, and experimented upon animals, in-

<sup>1</sup> *Post-Graduate*, XV, p. 1007.

<sup>2</sup> *Boston Med. and Surg. Jour.*, 1900, p. 275.

<sup>1</sup> *Phila. Med. Jour.*, 1900, p. 467.

<sup>2</sup> *Internat. Med. Mag.*, Sept., 1900.

jecting them with rattlesnake venom and then with antivenene, and has no doubts as to the excellent effects of the latter. For instance, the usual fatal dose of venom for a rabbit is  $\frac{1}{2}$  Cc. (8 min.) of a 1-per-cent. solution of the dried venom, injected into a vein. The dose may kill in one minute, or the animal may survive for several days. But when this dose of venom is mixed with 1 Cc. (16 min.) of antivenene (or antivenomous serum, taken from the author's immunized horse) and then injected into the rabbit, very little disturbance is noticed. The same result is obtained if the venom and serum are injected separately into different parts of the body.

The author summarizes the treatment as follows: (1) Stop immediately the circulation in the bitten member or part of body, so as to prevent absorption of the poison. (2) Incise and enlarge the fang wound freely and suck forcibly to extract the poison—the suction may be accomplished with a surgeon's cupping glass or with the mouth, the poison being harmless when swallowed. (3) Inject hypodermically 3 to 6 drops of a fresh 10-per-cent. aqueous solution of calcium chloride into about a dozen different areas about the wound. Gold chloride is just as effective, but is too expensive. Potassium permanganate is of little value. (4) Give strychnine hypodermically to stimulate the respiratory center. Whisky should not be given at all, or only in very small doses, because an excess of alcohol still further depresses the heart already depressed by the venom. (5) *Immediately* inject 10 to 20 Cc. ( $2\frac{1}{2}$  to 5 fl. dr.) of antivenomous serum and repeat these injections frequently. The author advises people living or going into regions where there is danger of snake bites to carry a bottle of antivenomous serum with them.

**Iodipin**, according to Dr. Otto Dornblüth,<sup>1</sup> of Frankfort, is a very valuable addition to our armamentarium, representing as it does an active preparation of iodine, which is free from all disagreeable by-effects or danger of intoxication, and can be used subcutaneously, thus in no way interfering with the digestive organs. As has been shown by Winternitz, iodine similar to the other halogens is capable of forming a stable compound with various fats, and can be absorbed into the system as such without decomposition. Iodipin is an addition product of iodine and sesame oil, and is marketed in two strengths—10 per cent. and 25 per cent. The weaker preparation is employed internally per os, while the stronger

is for use subcutaneously. The indications for the use of iodipin are the same as for the use of the iodides; that is, in tertiary syphilis; in secondary syphilis when accompanied by fever, pains, and neuralgia; in periostitis and mucous patches; in psoriasis of the palmar and plantar regions; in scrofula; in chronic articular rheumatism; in asthma, headaches, and chronic neuralgia.

That potassium iodide is a precious remedy in many of these conditions nobody will gainsay; but, unfortunately, it frequently happens that it cannot be employed because of its severe by- and after-effects; while, furthermore, occasionally no results whatever can be seen from its administration. Again, the action of potassium iodide is sometimes too slow; e. g., in tertiary syphilis of the brain. Here the hope of cure, or even of saving the life of the patient, depends upon the rapid saturation of the system with iodine. Before the iodides act, the gumma sometimes becomes so large that the loss of cerebral substance cannot be replaced, and it is in such cases that iodipin, subcutaneously employed, does excellent service. Again, as already said, in some cases potassium iodide has no effect whatever. In a case of cerebral syphilis from Leyden's clinic, cited by Schuster, the cerebro-spinal fluid obtained by lumbar puncture was shown to contain no iodine whatever, though potassium iodide had been administered freely. Another disadvantage attending the use of potassium iodide is that the iodine set free from it leaves the system very rapidly; even after a prolonged treatment with that drug no iodine can be found in the urine in three to five days after the last dose has been administered. The effect of the treatment, therefore, is not a lasting one.

Entirely different is the action of iodipin. While iodine can be shown in the urine ten to twenty minutes after the first dose, it takes from three to five weeks, and sometimes as long as ten weeks after the last subcutaneous dose has been given, before iodine ceases to be found in the urine. When iodipin was used subcutaneously, iodine could never be found in the feces, and when used internally only small traces could be demonstrated.

On the whole, the author prefers the hypodermic method; it is surer, quicker, does not disturb digestion, and is not at all painful. But five to ten injections are needed to get the same effect as is obtained with potassium iodide in four to six weeks. Again, in cerebral syphilis with unconsciousness, the hypodermic method is the only one available. The dose used by the author for each injection was 75 min., though other clin-

<sup>1</sup>Aertz, *Monatssch.*, 1900, No. 5.



icians have used as much as 2 to 5 drams without any untoward effects. Of the many cases treated by the author during the past eighteen months he selects the five most striking ones and reports them in detail. One was a case of diffuse cerebral arteriosclerosis, two of locomotor ataxia, one of cerebral syphilis, and one of syphilitic neuritis. The effect of iodipin in each of these cases was unmistakable; the symptoms improving markedly after the first few injec-

**Hot Normal Salt Solution**, in *pleurisy* with effusion, is recommended by Dr. John A. Robison.<sup>1</sup> In a case under the author's treatment aspiration had been practiced five times, the effusion each time returning. Normal salt solution was injected, with the result that in twenty-four hours the urine was considerably increased in amount, and in three days the pleural cavity was almost free from effusion, which did not return. Another case was aspirated, but the fluid was so fibrinous that it flowed with difficulty through the aspirating needle. Injection of normal salt solution had the effect of diluting and liquefying the fibrinous exudate, and on evacuating the fluid the pleural cavity was filled with hot normal salt solution and allowed to remain. In ten days the effusion disappeared and never returned.

The rationale of the treatment is simple: First, it increases osmosis of the fluid from the pleural cavity into the blood-vessels; second, it increases the activity of the absorbent lymphatics; third, it acts as a solvent and an antiseptic; and fourth, the heat of the injection has a stimulating influence on the pleural vasomotor nerves, dilating the capillaries and hastening the blood current.

**Globon** has been used with most satisfactory results by Dr. Adolf Hoff,<sup>2</sup> assistant at Prof. Ritter von Stoffela's in-door section of the General Clinic of Vienna, in three cases of pneumonia, one of typhoid, and also in a number of severe cases of influenza. There was not the least evidence of any disposition to cause diarrhea, even though intestinal disturbances were quite prominent in these cases. In two cases of serous pleuritic exudations, permanent drainage was instituted, and globon given, under which treatment a rapid increase in body-weight was observed. A similar result was obtained in a case of empyema of the pleural cavity, and in three cases of osteal caries. Employed in a large number of cases of phthisis, globon increased the ap-

petite and in consequence the weight. In four cases of rachitic affections its action was similar. In a case of carcinoma of the major curvature in an impermeable carcinoma of the pylorus, in a round ulcer, and in a case of uncontrollable hysterical vomiting, in the last three of which nothing could be retained by the stomach, globon was administered rectally, in the following form:

Milk.....	250 Gm. (8 fl. oz.)
Egg-yolks.....	2
Claret.....	15 Cc. (4 fl. dr.)
Sodium Chloride.....	a pinch
Globon.....	20 Gm. (5 dr.)

Four such enemas were given daily, and patients actually gained in weight.

From the trials made so far, the author concludes that in globon we possess one of the most valuable of nutritives, which, in proper quantities, besides being able to fully replace the albumin usually taken in food, exerts a certain tonic action in febrile patients, which is not to be underestimated, because its significance in the treatment of severe debility is certainly of particular importance, and constitutes a powerful argument for recommending the use of globon.

**Chaulmoogra Oil** has been used with most excellent results by Dr. W. Dönetz,<sup>1</sup> of the Institute for Infectious Diseases in Berlin, in two cases of *leprosy*. Chaulmoogra oil, or oleum gyncardiae, has long been known as a remedy in leprosy; it has been given internally, sometimes, in as large doses as 300 drops a day. As the author's cases did not bear the oil well, when administered internally, he decided to give it hypodermically. The injections gave rise to quite a remarkable local and general reaction. The general reaction consisted in a temperature rise which lasted for several days, while the local reaction consisted in a reddening and inflammation of the affected tissues; especially noticeable was a periciliary inflammation on both eyes. In the first patient the infiltrations covered practically the entire body, and after a few injections the improvement was clearly apparent. The swelling diminished, the skin regained its fine wrinkles, and became movable, and the color improved. After four months' treatment, the immense infiltrates on the legs disappeared, the leonine face regained a human likeness; the bilateral pannus, which had been so severe that the patient could but with difficulty see her way, was almost completely cured. She experienced trouble only in fine, delicate work.

<sup>1</sup> Med. Council, 1900, p. 205.

<sup>2</sup> Aenzil. Centralztg., XI, No. 19, 1900.

<sup>1</sup> Berl. klin. Woch., 1900, p. 773.



Besides the chaulmoogra oil, this patient received also other treatment, such as sulphur baths; it is therefore difficult to say how much of the improvement was due to the oil alone. But the second patient, with the tubercular form of leprosy, was purposely kept on the chaulmoogra oil without the employment of any other remedial measure whatsoever. The local and general reaction was just as noticeable in this patient, and the improvement just as marked. The dose of the injections ranged between 2 and 8 grn., and the interval was from eight to fourteen days. [The oil was probably diluted with some bland oil, like olive oil.]

**Dormiol** was employed by Dr. V. Kétly<sup>1</sup> in the Medical Clinic in Budapest in a number of cases, and after reporting the results in detail he reaches the conclusion that dormiol is an excellent, unfailing hypnotic, devoid of all unpleasant by-effects, and can be used in all cases where a pure hypnotic is indicated. The dose administered was a teaspoonful of a 10-per-cent. aqueous solution.

**Guaiaicol** in *neuralgia* is recommended by Dr. A. Brodnax.<sup>2</sup> He states that if 5 to 10 drops of guaiaicol are gently rubbed into the skin over the painful spot, the neuralgic pain will cease at once, no matter of what character the neuralgia may be. He was led to try guaiaicol in neuralgic affections by the statement in a medical journal that if 10 to 15 drops of guaiaicol were rubbed into the abdominal skin, over the uterus, the spasmodic pains would stop almost immediately, and they would become more steady and lasting. He says he used the guaiaicol in about fifty cases of neuralgia, of different origin, and in each case the treatment was successful.

**Ichthargan** has been employed by Dr. L. Leistikow<sup>3</sup> in fifty-five cases of *acute gonorrhoea*, and the results have been so uniformly satisfactory that he is certain that we possess in it an excellent antigonorrheal remedy, well worthy of trial by the medical profession. This compound forms a dark-brown powder, having no odor, and readily and clearly soluble in water. It contains 30 per cent. of silver and 15 per cent. of sulphur, the latter organically combined in the form of ichthyol sulphonic acid. The author states that ichthyol and silver being by themselves excellent antigonorrheals, it was to be expected that a compound would prove

still more effective. His experience with his cases in private practice, the histories of which he gives in detail, has fully justified his expectations. The strength in which the remedy was used ranged from 0.02 to 0.2 per cent. (from  $\frac{1}{5}$  to 2 grn. in 1000 min. of water). The more often the remedy was used the more satisfactory were the results. At no time were there any symptoms of irritation, nor any complications, though in some cases the patients used the injection nine times a day. Not only was the duration of the cure shortened, but in several cases the ichthargan seemed to have a positively abortive effect. The gonococci disappeared more rapidly than is usually the case with other means, and the purulent discharge quickly became converted into a serous one.

**Psoriasis** is seldom affected by dietetic treatment, according to Dr. Arnold Edwards,<sup>1</sup> who believes that patients afflicted with this disease should eat such food as is best calculated to maintain their general health. With regard to clothing, both irritation and chilling of the skin are to be avoided. Although a warm and equable climate is most favorable, sometimes removal to a higher altitude is decidedly beneficial. Sea bathing also frequently does good. Of constitutional remedies, arsenic is considered the most important, but its administration should not be continued after the disappearance of the eruption, as it has no prophylactic virtue. It is preferably given in the form of Fowler's solution, beginning with 2 or 3 min. and gradually increasing to 10 min., three times daily, after meals. Signs of intolerance of course indicate a reduction of dose or temporary suspension, although intestinal irritation may be relieved with opium. When hyperemia is very marked, arsenic is contraindicated; in such circumstances, it may be replaced by wine of antimony, 5 to 10 drops, three times daily. Occasionally good results are obtained with phosphorus,  $\frac{3}{32}$  grn. in pill after meals. In hyperemic cases, salicylic acid is often useful. When its external application is impracticable, chrysophanic acid (chrysarobin) may be given internally, but it frequently causes severe gastro-intestinal disturbance. Nervous complications may be met with the bromides or hydrobromate of quinine.

The first step in local treatment is the thorough removal of all scales. They may be softened and loosened in various ways, such as by the free application of hot water and soft soap, more or less prolonged im-

<sup>1</sup> *Therapie der Gegenw.*, 1900, No. 8.

<sup>2</sup> *Wis. Med. Recorder*, 1900, p. 228.

<sup>3</sup> *Monatsh. f. prakt. Dermatol.*, Aug., 1900.

<sup>1</sup> *Med. Brief*, XXVIII, p. 1153.

mersion in tepid water or an alkaline solution, or inunction with oil or vaselin. Except in very chronic cases, a good ointment to relieve hyperemia and remove scales is composed of kaolin and starch, each 1 part, and soft paraffin, 2 parts, as a base; to this are added glycerin of lead acetate, liquor carbonis detergens and salicylic acid, of each 2 per cent. at first, the proportion to be gradually increased. The scales of old patches may be removed by thoroughly rubbing in a 6-per-cent. solution of salicylic acid in spirit. Thick, dry, hard scales should be treated with a 10-per-cent salicylic ointment after they have been well soaked in a bath containing calcium sulphide. If the surface from which the scales have been removed is very hyperemic, soothing applications are indicated, such as calamine lotion, olive oil, or cold cream or solution of sodium bicarbonate. In less acute cases, chrysarobin is the remedy par excellence. On account of its irritating and staining qualities, it should not be used on the head or neck or near the genitals. Some of its disadvantages may be overcome by combining it with traumaticin, a 10-per-cent. solution of pure gutta percha in chloroform. It may also be employed in the form of a plaster or salve.

Another important local remedy is tar. The patient should take a warm alkaline bath for the greater part of an hour, meanwhile applying gentle friction to the patches to remove all epithelial detritus. He should then dry the skin thoroughly and rub in the remedy. A commonly used preparation is the tar ointment of the British Pharmacopœia, but less objectionable is the liquor carbonis detergens, 2 dr. to the ounce of wool-fat, or applied full strength and allowed to dry. Still more agreeable is juniper tar, which may be mixed with oil or applied as an ointment. Pyrogallie acid is an efficient remedy, and is safe and unirritating in the strength of 20 grn. to the ounce. It should not be applied to the entire surface of the body, however, as its absorption may give rise to toxic symptoms.

**Amenorrhea** should seldom receive direct treatment, according to Dr. L. H. Dunning,<sup>1</sup> for the reason that it is a symptom only. In all cases, the underlying cause should be sought and, if possible, relieved. Congenital absence or defect of the sexual organs, of course, cannot be remedied. Retarded development, if the patient is under twenty, may sometimes be overcome by means of the stimulating effect of the faradic current, combined with the prolonged

administration of iron in small doses. The use of the zinc and copper stem pessary is also useful in these cases, especially if there is antelexion of the uterus. Not infrequently, a happy marriage supplies the necessary stimulus. If the uterus and ovaries are atrophied, treatment will be useless. Extirpation of well-developed ovaries is occasionally indicated if the other sexual organs are rudimentary. Atresia of the cervix, vagina, or introitus, of course, requires operation, with subsequent care to preserve patency. The amenorrhea of pale, overgrown girls will generally yield to judicious exercise in the open air, combined with a systematic course of iron and arsenic. If not, the faradic current may be used, and, also, some mild emmenagogue, such as potassium permanganate in 1 or 2 grn. doses. Frequently a change of air and scene is highly beneficial, especially when worry or mental strain is a factor. For chlorosis, the most effective remedy is iron, in combination with hygienic and dietetic measures. The functions of the bowels, kidneys, and skin should be kept active. If voluntary exercise is impracticable, massage or Swedish movements should be substituted. Finally, the faradic current and mild emmenagogues may be utilized. The amenorrhea following debilitating disease will usually be relieved spontaneously during convalescence without special treatment.

**Puerperal Eclampsia** has been successfully treated with *pilocarpine* by Dr. A. Inglis.<sup>1</sup> The patient, a primipara of twenty-three years, was attacked with convulsions as soon as labor set in, having had no premonitory symptoms. The os was then rapidly dilated, the forceps applied, and a healthy male child delivered. But the convulsions, instead of diminishing, began to increase after delivery, and that in spite of various measures undertaken. The patient being unconscious, her bowels were freely opened by two min. of croton oil placed on the tongue. To relieve the attacks chloroform was administered. Eighteen hours after the commencement of labor, when the author was called in, in consultation, the patient's condition was as follows: Clonic convulsions about every five minutes, temperature 100°, pulse 140, extremities cold, pupils equally dilated; also strabismus. One-tenth grain pilocarpine was injected deeply into the arm, and several hot-water bottles, wrapped in pieces of blanket, were placed under the bedclothes. Within ten minutes profuse diaphoresis set in, the ex-

<sup>1</sup>Med. Rec., LVIII, p. 133.

<sup>1</sup>Lancet, Sept. 15, 1900.

tremities became warm, and the convulsions soon ceased. As the system responded so promptly and satisfactorily, the pilocarpine was not repeated, but the hot pack and poultices to the loin were continued. Patient made good recovery; convulsions did not return, but consciousness was regained only on the following morning. No untoward effect followed the administration of the pilocarpine, except a moderate amount of salivation.

A case of **Acetanilid Habit** is reported by Dr. G. W. Gaines.<sup>1</sup> The patient was a negro to whom acetanilid had been given several years previously for the relief of an attack of rheumatism, from which he suffered. Finding relief while taking the drug, and the pain returning on its being discontinued, the patient began to use the drug regularly every day. During the last several months he has been consuming the acetanilid at the rate of 2 oz. per week. Whether any ill-effects have been noticed the author

**Ringworm of the Scalp** is treated by Dr. Jamieson<sup>2</sup> with the following ointment:

Precipitated Sulphur..	} of each, 10 grn.
Salicylic Acid.....	
Beta-Naphtol.....	
Ammoniated Mercury..	
Wool Fat.....	to make 1 oz.

The hair is kept shaved or cut from the entire scalp until the cure is complete, and the scalp must be kept rigorously clean by washing twice daily with superfatted soap and warm water. After washing the scalp the ointment is rubbed in thoroughly.

**Catarrhal Conjunctivitis** is believed to be of bacterial origin by Dr. J. Ivrney Dowling,<sup>3</sup> who institutes antiseptic treatment with the instillation of formalin (formaldehyde), 1:2000, or mercury bichloride, 1:5000, four times daily. In addition, ice-cold applications are beneficial during the earlier stages. Refractive errors should be corrected if present, and appropriate constitutional remedies should be prescribed if indicated. Simple hyperemia is best treated with hot applications of hamamelis and the instillation of boric acid solution, 10 grn. to the ounce. Purulent conjunctivitis requires energetic treatment to prevent implication of the cornea and subsequent impairment of vision. Ice-cold applications over the eyeballs should be begun early, and

every portion of the conjunctiva should be thoroughly swabbed, first with hydrogen dioxide, 1:4, and then with mercury bichloride, 1:5000. Or silver nitrate, 5 to 20 grn. to the ounce, may be applied to the everted lids and then neutralized with a saline solution, as it is likely to do serious damage if it comes in contact with the cornea. If only one eye is affected, the other should be protected from contagion by means of a watch glass secured by strips of plaster around the margin. Lymphatic, phlyctenular, or scrofulous conjunctivitis depends on constitutional debility and requires hygienic, dietetic, and tonic treatment, as well as protection of the eyes from strong light by means of smoked glasses. Locally, stimulating washes and powders are indicated, a most efficient application being a 5-per-cent. solution of nuclein. Involvement of the iris calls for the instillation of a 2-per-cent. solution of atropine.

**Chronic Pharyngitis** is treated by Dr. Savoie<sup>1</sup> in the following manner: The naso-pharynx is washed morning and night with a pint of an antiseptic solution containing carbolic acid, salicylic acid, lactic acid, and menthol; after washing, the following mixture is inhaled for four or five minutes:

Formaldehyde (40% solution) ...	1 min.
Menthol .....	2½ dr.
Gomenol .....	2½ fl. dr.
Chloroform .....	1½ fl. dr.
Eau de Cologne .....	3½ fl. oz.

Besides this, the naso-pharynx is touched up every night with either a saturated aqueous solution of resorcin, or

Menthol .....	15 grn.
Tinct. Iodine .....	75 min.
Glycerin .....	2½ dr.

The author says that this treatment has given him excellent results.

**Gonorrheal Arthritis** and septic effusions in general are very greatly benefited, according to Dr. Edward Armitage,<sup>2</sup> by the application of *mercurial ointment*. While he uses internal medication, such as salol, sodium salicylate, etc., he thinks the chief credit is to be given to the mercurial ointment. Three severe cases of gonorrheal arthritis are reported, which were treated unsuccessfully by other methods and where morphine had to be used frequently to alleviate the pain. Salol internally and inunctions of compound mercurial ointment resulted in complete and rapid cure. [The

<sup>1</sup>N. Orleans Med. and Surg. Jour., LIII, No. 1.

<sup>2</sup>Edinburgh Med. Jour., VII, No. 6.

<sup>3</sup>Medicine, VI p. 631.

<sup>1</sup>Rev. de Laryng. et Otologie, 1900, p. 239.

<sup>2</sup>Lancet, Sept. 8, 1900.



compound mercurial ointment of the British Pharmacopœia consists of: Mercurial ointment, 10; yellow wax, 6; olive oil, 6; and camphor, 3.—Ed.]

Nor is gonorrheal arthritis the only bacterial infection yielding to mercury; the author believes it to be very useful in meningitis. A case is reported of a child of three years suffering with acute meningitis, having been unconscious for three days. Cold applications were made to the head, and a teaspoonful of mercurial ointment was rubbed into the shaved scalp every day. The child made an uninterrupted recovery. Another case of "idiopathic" meningitis was treated in a similar manner, with a similarly favorable result.

**Summer Diarrhea** in infants, according to Dr. Chas. G. Kerley,<sup>1</sup> manifests no disposition to get well of itself, but will generally yield to simple treatment, promptly and vigorously instituted. The main indications in most cases are to eliminate the offending bacteria and to prevent their re-accumulation. For the former purpose he advises a teaspoonful of castor oil or  $\frac{1}{10}$  grn. doses of calomel hourly for ten doses. However, if the movements are very frequent, eight to twelve a day, when the case is first seen, the castor oil should be omitted and the calomel should be reduced to five hourly doses of  $\frac{1}{20}$  grn. each. When the movements are comparatively infrequent, two or three daily, but foul-smelling and containing much mucus, active purgation should be induced by means of oil, followed in a day or two by calomel. Vomiting contraindicates both remedies until it has been controlled.

The second indication dictates the discontinuance of milk, which is an excellent culture medium. As a substitute, dextrinized barley water is recommended. This may be combined with various meat broths, in alternation, in order to avoid monotony. When vomiting exists as a complication, the stomach should be washed out and given absolute rest for a few hours. Then a teaspoonful of water may be tried and, if retained, repeated every fifteen minutes, with the gradual addition of dextrinized barley water. If the water is not retained, feeding by gavage should be resorted to. Milk should not be resumed until the stools are nearly normal in character and frequency, and it should be substituted for the barley water very slowly and cautiously, the least return of the diarrhea being an indication for its im-

mediate discontinuance. It will need to be highly idluted at first, but may subsequently be gradually increased in strength.

About the only drugs recommended, in addition to the castor oil and calomel already mentioned, are bismuth and opium. Although disinfection of the bowels is regarded as impracticable, it is believed that bismuth helps to make them inhospitable. Large doses are given, 12 to 20 grn. every two hours. Opium requires great caution in its use, and should be administered only when the movements are very watery and frequent, at least five or six daily. The preferred preparation is Dover's powder,  $\frac{1}{4}$  to  $\frac{1}{2}$  grn. every two or three hours. For fever, packs, baths, and sponging are all that is advised. If heart stimulation is necessary, strophanthus, strychnine, or digitalis may be used, but alcohol should be avoided as likely to derange the stomach. In cases of marked prostration with uncontrollable vomiting, a hypodermic of morphine is useful,  $\frac{1}{100}$  grn. with  $\frac{1}{600}$  grn. of atropine. Although colonic irrigation is not indicated when the movements are numerous, it is of decided advantage when they are comparatively infrequent and foul-smelling, particularly if they contain blood or much mucus. Generally, from one to two quarts are used of normal salt solution or 1-per-cent. boric acid solution, but 1-per-cent. tannic acid is sometimes preferable if there is blood or much mucus in the stools. The irrigations are made once, twice, or thrice daily, according to circumstances. The temperature of the injected fluid is usually a little below 100°F., but in case of high fever, it may be reduced to 60°.

**Buboes** have been recently given some attention by Dr. H. M. Christian,<sup>1</sup> of the Philadelphia Polyclinic, who states that the most satisfactory results have been obtained in their abortive treatment with an ointment of the following composition:

Mercurial Ointment.....	} equal parts
Belladonna Ointment... ..	
Ichthyol.....	
Lanum .....	

If the bubo be seen early, no heat or redness being present, a piece of surgical lint spread with the ointment is applied directly to the swollen gland; over this is placed a piece of oiled silk of the same size. A large pad of cotton is next applied, and firm, continuous pressure is obtained by the application of a wide spica-of-the-groin bandage, two bandages being employed. This treatment is applied every other day until, in

<sup>1</sup>*Med. News*, LXXVII, p. 159.

<sup>1</sup>*Therap. Gaz.*, XVI, p. 517.

cases where it acts successfully, entire resolution of the bubo is accomplished—usually in from ten days to two weeks.

Twenty buboes have been treated in this manner during the past year in the Genito-Urinary Dispensary of the Polyclinic. Of these, twelve were successfully aborted, eight of the cases following gonorrhea and four accompanying chancroid. Resolution occurred in these cases in from two to three weeks, and was evidenced by the total disappearance of the enlarged gland at that time. Of the eight cases where the abortive treatment failed, six were cases of tubercular adenitis. In these instances, however, it was early apparent that resolution would not occur, and that surgical measures should be resorted to.

**Erysipelas** is a disease which, according to Dr. John C. Webster,<sup>1</sup> does not call for much drug treatment. Tonics, stimulants, and nourishing food should be given assiduously: if there be much pain, opiates may be administered. The treatment which he has pursued for many years, in the majority of his cases with success, is as follows: 10 to 30 drops of tincture of ferric chloride in syrup of lemon every two hours until the symptoms begin to abate, and then every three or four hours as long as necessary. As an external application he used chiefly resin cerate, or ichthyol; the ichthyol was used either in the form of an ointment with vaselin, or as a 25- to 50-per-cent. solution in glycerin and water. In his last three cases, in which the above treatment was employed, the redness subsided and the temperature became normal in five days.

**Uric Acid Lesions**, so-called, are, in the opinion of Dr. Alfred C. Crofton,<sup>2</sup> produced not by uric acid, but by the alloxuric bases. Excessive formation of the latter is due to insufficient oxidation of nitrogenous material. Experimental evidence is adduced to demonstrate that uric acid is a perfectly harmless, normal constituent of the blood, but that the alloxuric bases are poisons capable of producing the lesions in question and, ultimately, of causing death by uremia. From this point of view, the therapeutic indications are to increase the elimination of the toxins as they are formed, to reduce the nuclein catabolism, and to promote oxidation. The first of these indications is met by the administration of alkaline diuretics. For the second, the only feasible measure is restriction of the diet by prohibition of alcohol and of ar-

ticles rich in nuclein. The principal part of the treatment is dictated by the third indication, and comprises the administration of iron, arsenic, tonics, and oxygen. Iron is given first in inorganic combination for the purpose of tying up the sulphur in the intestines, and then in organic combination with a view to absorption. Arsenic, generally in the form of Fowler's solution, is administered as in anemia. Tonics are meant to include all hygienic measures, such as massage, hydrotherapy, etc. Oxygen inhalations are given at first daily, then every other day, and finally twice weekly, the entire period of treatment being at least three months. The quantity used is five gallons. After inhalation, it is held as long as possible in the lungs, and then exhaled slowly. Excellent results are claimed for this method of treatment, although sufficient time has not yet elapsed to warrant definite statements as to permanent cure.

**Tinea Favosa** has been successfully treated with *hydrogen peroxide* by Dr. Simonelli.<sup>1</sup> It was employed in three cases; the application was made by means of compresses saturated in peroxide of 10- to 12-per-cent. strength. Epilation was required only once, and the patients were cured much more rapidly than is the case in treatment with any other method.

**Cocaine Poisoning** has recently been reported on by Dr. Bergmann,<sup>2</sup> who describes the case of a patient, a man of forty-four years, who had been suffering intensely from sciatica. In order to give him immediate relief, the doctor injected hypodermically  $\frac{5}{8}$  grn. of cocaine hydrochlorate, pushing the needle right down to the sciatic nerve. The result was excellent. In five minutes the patient had not a trace of pain and was able to walk easily. On the next day, the pains having returned, the patient asked for another injection. The doctor injected  $\frac{1}{2}$  grn. in the upper portion of the thigh, in the direction of the peroneal nerve. Though the dose was smaller than on the previous day, the effect was entirely different. In about three minutes after the injection the patient became faint and dizzy, his head began to swim, and he fell to the floor. When brought to bed severe palpitation of the heart was noticed. His pulse was 120, respirations 32 and panting; his mind was somewhat clouded. In about ten minutes clonic convulsions in the upper extremities and in the left leg were noted, the convulsions being so violent that the bed shook.

<sup>1</sup>Clin. Review, XII, p. 384.

<sup>2</sup>N. Y. Med. Jour., LXXII, No. 221.

<sup>1</sup>La Sem. méd., 1900.

<sup>2</sup>Therap. Monatsh., Sept., 1900.



The face became purple, the eyeballs protruded, and the pupils were widely dilated; no corneal reflex. The eyelids were constantly opened and closed, and the tongue was also pushed out and drawn in continuously. Cold applications to the pericardium and large quantities of strong black coffee brought the patient into a nearly normal condition in about half an hour. The author believes that it is possible that he injected the cocaine directly into some small vein.

**Pulmonary Edema** is, from its sudden onsets, one of the most formidable complications we have to deal with, says Dr. Le Sage.<sup>1</sup> The treatment must be prompt and energetic, and should consist of the following measures:

1. Venesection. From 300 to 500 Cc. (10 to 16 fl. oz.) of blood should be drawn.
2. Dry cupping on the back and chest.
3. Spice poultices around the lower extremities.
4. Ether in large doses, hypodermically; the effect of this is prompt and sure. Also injections of caffeine and of a 10-per-cent. solution of camphor in oil.
5. Drastic cathartics, such as compound tincture of jalap, infusion of senna with Epsom salts, etc.
6. A strict milk diet, and plenty of water, with sodium bicarbonate or sugar of milk.

In conclusion, the author condemns the use of opium or its derivatives in this dangerous and distressing condition.

**Bilious Hemoglobinuric Fever** was very successfully treated by Dr. Paul Gouzien,<sup>2</sup> principal physician of the Colonies, with large saline injections and infusions of cassia occidentalis, which the natives call Ahoundeme. He uses a physiological solution of sea salt, of which he generally injects 100 to 300 Gm ( $3\frac{1}{2}$  to 10 fl. oz.) per dose. This dose of artificial serum is sufficient to stimulate and maintain the vital energy during the time necessary for corpuscular repair and the restoration of functional equilibrium. It was never found necessary to employ more than four injections; sometimes one or two were sufficient. Since employing these injections the author has seen oliguria with alarming symptoms in only one case.

In cases of but moderate severity, Dr. Gouzien employs small enemata of the artificial serum—about 7 fl. oz. in the twenty-four hours. The simultaneous employment of an infusion of cassia occidentalis has also

given him excellent results. Whether the drug acts solely by virtue of its diuretic, diaphoretic, and cholagogue properties, or whether it has a specific action on the pathogenic agent, is at present unknown; but in some cases its action is almost immediate, the urine becoming clear and increasing in quantity, the patient sweating profusely and having copious stools, and rapid convalescence following. The good effects of the drug are so well recognized that it is being cultivated extensively in the colony.

The author's formula for the infusion is as follows:  $\frac{1}{2}$  oz. of Ahoundeme leaves, recently dried, and 1 quart of water; infuse, strain, add juice of one small lemon, and  $1\frac{1}{2}$  fl. oz. syrup. A glassful at a dose is to be taken at short intervals. From 1 to 3 quarts a day may be taken. From January, 1897, to March, 1900, Dr. Gouzien treated fifty-three patients suffering with bilious hemoglobinuric fever, without a single death.

**Pulmonary Tuberculosis** is, according to Dr. T. J. Mays, who discussed the subject at the fiftieth annual meeting of the Medical Society of the State of Pennsylvania, essentially a disease of exhaustion, which advances or regresses according to the condition of the patient's strength, and rest is therefore of the greatest value in the treatment. Of equal importance is food, which must be nutritious, easily digestible, and given in small amounts at frequent intervals. The stomach should not be overburdened and rectal alimentation should be resorted to whenever occasion demands it. Fresh blood and scraped beef are well absorbed by the rectal mucous membrane. Of medicines, *strychnine* and *silver nitrate* are very useful. The strychnine is to be given in small doses to raise the tone of the nervous system; the silver nitrate is injected hypodermically over the course of the pneumogastric nerves in the neck. It stimulates those nerves and affects the disease favorably. A few minims of a cocaine solution first, and then through the same syringe 5 min. of a  $2\frac{1}{2}$ -per-cent. solution of argentic nitrate, are injected.

In **Dysentery** of the new-born and in all cases of infantile intestinal disorders Dr. Gibson<sup>1</sup> recommends cleaning the alimentary canal with small doses of *calomel*, flushing the colon with a weak solution of *crocin*, and giving the child nothing but pure cold water. Under this treatment most of the children, he claims, will get well.

<sup>1</sup>L'Union médicale du Canada, 1900, No. 6.

<sup>2</sup>Thirteenth Internat. Med. Congress, Paris.

<sup>1</sup>St. Louis Med. Era, Sept., 1900.



# The Prescription

We wish to have our readers use this department with the utmost freedom. Any question about the prescription or about any substance used in prescriptions comes within its range. We shall do our best to find correct answers for all, and if we fail for lack of information at hand, some one of our readers may be able to give the right reply. On questions of therapeutics or practice we shall not attempt to give any opinions of our own, but find for the questioner what the best available authorities on such subjects have to say upon them. Let every reader resolve his doubts about compatibilities, doses, latest remedies, best methods of administration, dangers of remedies, etc. Send in favorite prescriptions and let others be benefited by what you have discovered. We shall give full credit for all such information. As some persons do not care to have their names appear as the authors of queries, we will refrain from giving names in this connection when requested to do so. Sometimes it is an advantage to have the writer's name published, and in such cases we hope that overdiffidence will not interfere with the right.

**Dr. J. H. B.**, of New York, writes: "Kindly print the formula of VAN SWIETEN'S LIQUOR. I am unable to find any mention of it in the latest edition of the 'United States Dispensatory.'"

Van Swieten's liquor is a 1:1000 solution of corrosive sublimate. Its exact formula is as follows:

Corrosive Mercuric Chloride.....	1 part
Alcohol.....	100 parts
Distilled Water.....	900 parts

In this country the formula is generally given as follows:

Corrosive Mercuric Chloride.....	2 grn
Alcohol.....	3 fl. dr
Distilled Water.....to make	4 fl. oz

Each teaspoonful contains  $\frac{1}{8}$  grn. of corrosive sublimate.

**Dr. W. A. A. S.**, of Alabama, writes: "I have just read an article on the use of CREOSOTE in the May number of MERCK'S ARCHIVES, in which the author says that he gives it in a 'preparation of malt,' but fails to say what kind he uses. Will you kindly inform me what preparation he uses?"

On referring to the original article, we find that towards the end the author states that the preparation he uses is maltine. The author does not lay any special stress on this point, as he ascribes the good results obtained by him to the creosote and not to the malt, considering the latter simply as a good vehicle, and we think that any of the thick syrupy preparations of malt on the market would answer as well.

**J. W. McM.** wants to know the "proper dose of STRYCHNINE." It is difficult to answer this question satisfactorily. Dosage of drugs is still in a chaotic condition, and the doses given by different authorities vary sometimes considerably. Again, we must remember that the dose of a drug varies according to the condition for which it is administered. Occasions arise in which we are obliged to give the drug in much larger doses than ordinarily advised; for instance,

veratrum viride in puerperal eclampsia. Of strychnine the minimum dose is given as  $\frac{1}{10}$  grn.; the maximum,  $\frac{1}{20}$  or  $\frac{1}{16}$ , though it is occasionally administered in as large doses as  $\frac{1}{12}$  grn. It is well to know that the German Pharmacopœia gives the maximum dose of strychnine nitrate (the only salt of strychnine official in that Pharmacopœia) as 0.01 Gm. (or  $\frac{1}{6}$  grn.). We have not heard of anybody in this country giving strychnine in such doses.

**Dr. G. G.**, of San Francisco, writes: "I have been looking in vain through the two volumes of the ARCHIVES for an article on PHENOCOLL HYDROCHLORATE. Please fill up the gap, and oblige one of your subscribers, and probably the profession at large as well."

The reason no abstract appeared in the ARCHIVES on the drug spoken of is because no reports on its use have appeared in the medical press for some time. The preparation seems to be falling into disuse.

**Dr. G. W. B.**, of Nebraska, writes: "We have now an epidemic of *whooping-cough* in our town, and I should like to know what is the best treatment for this rebellious disease. What drugs are most recommended?"

It would be easier to enumerate the drugs which have *not* been recommended for the treatment of pertussis than those that have, because the name of the latter is legion. Still, we will try to help our correspondent out. The drugs that are at present most prominently mentioned in connection with the treatment of whooping-cough are quinine, antipyrine, sodium bromide, bromoform, belladonna, and cocaine.

QUININE is very useful if it can be given in large quantities—12 to 20 grn. a day to a young child. Unfortunately, its bitterness and other by-effects often preclude its employment. In such cases it can be very advantageously replaced by EUQUININE, which is a perfected superior quinine, absolutely

tasteless, and, according to the reports of various observers, possessing none of the disadvantages of quinine. Dr. S. S. Gerenstein (see *Ejenedelnik*, 1899, No. 37) has treated ten cases with euquinine, and in every case the excellent effects of the remedy were unmistakable, and in not a single instance could any bad effect be observed, although the remedy was given for a long period. Equally good results are reported by Prof. von Noorden, Dr. Cassel, of Berlin; Dr. Franz Niedermayer, etc.

ANTIPYRINE is considered with favor by the greatest number of clinicians, and so is SODIUM BROMIDE; a combination of the two seems to act best. Dr. C. G. Kerley has had under observation 752 cases of whooping-cough (*Pediatrics*, May 1, 1900), treated by different methods. Antipyrine and sodium bromide were tried in sixty cases, and the combination seemed to give better satisfaction than any other drug. About BROMOFORM the reports are contradictory. In Dr. Kerley's cases it proved very unreliable. Kaulheimer, on the other hand (*Pediatrics*, Nov. 15, 1899), has obtained most favorable results from bromoform. He used it in more than forty cases, ranging in age from four months to ten years, and of varying degrees of severity. In almost all cases there was a great improvement, the attacks diminished in severity and frequency, the vomiting and epistaxis ceased, and the sleep became much more restful. He reports no unfavorable by-effects. Nevertheless, it is a drug to be used with caution, as several cases of intoxication and nearly fatal poisoning have been reported. Bromoform being a very heavy liquid and insoluble in water, it must be dispensed in a thick mucilaginous and syrupy vehicle, or in the form of an emulsion, and the bottle must be thoroughly shaken before each administration. The dose is from  $\frac{1}{8}$  to 1 min. (not drops—as there are 8 drops of bromoform in each minim; transferred into drops, it would therefore mean 1 to 8 drops), according to the age of the child.

BELLADONNA seems to be falling into disfavor. At one time it was considered the drug for pertussis, and it was advised to push it to the physiological effect; but the latest reports are not favorable to its reputation. Kerley used it in sixty cases, and it was administered in large doses until the full effect manifested itself. This took from five to seven days, but not in a single case was any favorable effect noticed.

COCAINE is used by some physicians internally; by others in the form of a sprav; it is also applied on cotton swabs to the nasal mucous membrane. The general con-

sensus of opinion is that it is fairly useful in a certain number of cases in diminishing the severity and frequency of paroxysms.

HEROIN has recently been recommended by some, while it has been found useless by others. Dr. Herman tried it in twenty cases in the Mount Sinai Dispensary (*Pediatrics*, May 1, 1900), but the results were very disappointing. It was altogether incapable of controlling the paroxysms, while antipyrine did so. He says that the best results have been obtained by him from a mixture containing to each dose 2 grn. of antipyrine, 1 min. of tincture of digitalis, and 4 min. of paregoric (for a child two years old).

Taking a comprehensive review of the most recent literature on the subject, we would formulate the following treatment: Give quinine, or, still better, euquinine, in doses of 6 to 20 grn. per day, according to age of child. Then give a mixture of antipyrine, sodium bromide, and digitalis—the latter to counteract the depressing effect of the antipyrine. Tincture of belladonna may be added to the mixture. Add a tablespoonful each of carbofic acid, and of oil of eucalyptus to 2 quarts of hot water, put on a stove, and allow it to simmer slowly. This will saturate the atmosphere with an antiseptic vapor, which eases the paroxysms and tends to prevent complications. Besides—and this is very important—give the little patients cod-liver oil, syrup of hypophosphites, and some preparation of malt. And last, but not least, let them have as much fresh air as possible.

Dr. L. R., of New York, writes to inquire if a mixture consisting of corrosive sublimate and syrup of hypophosphites, should not be perfectly clear and transparent. He says that he wrote a prescription calling for:

Hydrargr. Chlor. Corr. .... gr. iij  
Syr. Hypophosph. .... ʒ iij

and when he saw the medicine at the patient's home it had a grayish sediment.

Corrosive sublimate and syrup of hypophosphites should never be prescribed together. The hypophosphites are reducing agents, and when mixed with corrosive sublimate they reduce it first to calomel and then to metallic mercury.

#### Hay Fever:

Acetic Acid. .... 4 min.  
Resorcin. .... 3 grn.  
Sodium Chloride. .... 8 grn.  
Water. .... 2 fl. oz.

Use as a wash for the nasal passages.

—*Jour. des Practiciens.*



# Correspondence

## Open Answer to a Private Note of Inquiry

NEW YORK, Sept. 25, 1900.

W. C. COOPER, M.D.:

Dear Sir—In your paper entitled "Some Medical Philosophy," which we are now preparing for the press, we notice the following words: "There is a preparation—the basis of which is, I should think, a petrous product—which is a doubtless and positive remedy in many dermic troubles, and upon which I could dilate in measureless panegyric."

If not asking too much, we would be pleased to know the name of the product to which you refer, not for purposes of publication, but merely for our own information.

Faithfully yours,

Edtl. Dept., MERCK'S ARCHIVES.

CLEVELAND, Ohio, Sept. 28, 1900.

MERCK'S ARCHIVES:

There was a reason, dependent upon a deference to the proprieties, why I could not be more explicit in my paper. To him, who will read the article carefully I am sure the reason will become perfectly obvious. The product referred to was *ichthyol*, of course. What other agent of this character approximates it in many forms of dermic and other troubles?

It had been my purpose to write a more or less extended article upon the peculiar merits of this remedy. I had preserved notes and memoranda from my own experience, and had collated the testimonials of some of my medical friends in reference to it. A domestic cyclone—so to call it—scattered these collections to the demerol bowwows. No, my wife and I did not quarrel—we moved to a better and more commodious house, that's all. The total depravity of every circumstance connected with moving has always been a corroding conundrum to me.

Now, in the infinitude of my ignorance, I do not know just how nor where this *ichthyol* is obtained. I have never happened to see any literature on the subject. Really, it does not matter. One thing is certain—it never disappoints pharmacally. By the same token, it can be averred affidavitly (so far as my experiences go) that it never disappoints therapeutically.

It used to be my custom to exhaust all other putative remedies in an obstinate skin trouble, and then *cure* it at once with *ichthyol*. It soaked into me at last that this slavish adhesion to clinical classicism was unworthy of even *me*, and I took to using the remedy in most stubborn and obscure cases from the start. By this means I learned that there is a class of skin cases (a very small one) which may be better treated with some other remedy. It is not a panacea in skin diseases, but it escapes this estate by a very small margin. In such boldly parasitic skin maladies as scabies, for instance, I have never tried it. What would be the use, so long as the cheaper sulphur is so easily obtainable? Itch and affluence do not go together, so that the cheapness of sulphur, in this connection, supports one end of a very beneficial coincidence.

In about all atypical, unclassifiable, and anomalous skin troubles (and most of them are that to most doctors) *ichthyol* is the remedy. *Ichthyol* will cure an unnameable skin malady just as promptly and certainly as it will cure one which

is about all name. What is the use of wrenching one's mind into slivers over the compound complexities of a pathodermic conundrum? Let the doddering doctrinaire do that.

Across the street from my office lives a washer-woman who has had two attacks of a very unique and *outré* skin trouble. It has defied and laughed into limp desuetude the cuticular acumen of all the doctors of this section. It gives itself expression on the legs below the knees. It is, and is not, a form of eczema; it is, and is not, a variety of erysipelas, besides being, and not being, several other kinds of skin disease. Also, it is just as pronounced in its *not*-ness as it is in its *is*-ness. Four doctors had had prolonged innings in the case, with considerable less than negative results. Unnumbered topical agents had been used, and the woman's system had been saturated with arsenic, iron, and alteratives. She had been under treatment eighteen months, and at last had become completely helpless.

Utterly exhausted, physically and financially the woman was in a pitiable condition indeed. It happened—it always does happen—after the woman had become too poor even to pay for her medicine, she called *me* in. To a pint of water I added an ounce of *ichthyol*, and directed her to apply this solution to her legs every six hours. Within twenty-four hours it became evident to the patient that the right thing had been struck at last. Within a week she was well.

It is pertinent to state here that the disappearance of the eruption was attended with the most acute gastric distress at first. This depended upon both pain and nausea. This gradually diminished in severity, so that by the end of three days it was entirely gone. The only thing that gave any relief was frequent and copious draughts of warm water. By the way, this is my way of treating cholera morbus—first inducing emesis with a teaspoonful of warm water in which has been stirred a teaspoonful of ground mustard. Try it.

Did the stomach trouble depend, in any sense, upon a recession of the eruption, or was it merely a coincidence? The woman is extremely subject to such attacks. Any considerable dietetic irregularity will precipitate one. Boiled cabbage seems to be the chief tenet of her religion, and she was full of this Teutonic vegetable when I was called to see her.

In fourteen months she suffered from a recurrence of the disease. The same treatment was resorted to, and it promptly cured her. The same gastric trouble attended the decadence of the eruption, but—the inevitable cabbage was back of it. A feature that adds complexity to the case depends upon the fact that *sometimes* the cabbage does not disagree with her. Under this wee optimistic squint, her gastronomic insistence gets in its work. Alas, for the weakness of poor human nature!

I have reported this case because it so strikingly illustrates the power of *ichthyol* in indefinable and obstinate skin diseases. It is rather humiliating to be unable to give the name of the disease one has cured, but this is considerably obscured in the triumphant fact that one has *cured* it just the same. The circumstance sheds a new luster upon the classic query: "What's in a name?"

Those pestiferous opprobria which dictate themselves in semi-cancerous patches about the nose and temples—haven't you, doctor, many times



(temporarily) lost your religion over them? Well, ichthyol has a hostile affinity for them which is only a shade less remarkable than is the celerity with which it abolishes them. I do not know how many cases I have cured with ichthyol.

I have employed this remedy internally for hematuria, purpura hemorrhagica, etc., with excellent results. There are doubtless other conditions in which ichthyol possesses virtue as an internal remedy.

Before closing, I should like to say that it is my belief that a majority of skin diseases will yield much more readily if constitutional treatment accompany local treatment. I believe this holds as a truth, however particularly local any disease may seem to be. I have always employed constitutional measures in connection with my local use of ichthyol. The most and the best, and, as I believe, *all* we can do in the promotion of recovery, is to remove obstacles to its accomplishment. The stress of physiological optimism is ever imminent and assertive—if we can remove the clogs, recovery is assured. In many instances regulating the patient correctly to the laws of life will be sufficient. In many skin diseases, however, this is not enough. Something is required which possesses the quality of giving the vital genius of the skin a *chance*. Ichthyol possesses this quality to a phenomenal degree.

W. C. COOPER,  
Editor *Medical Gleaner*.

### State Boards of Medical Examiners

In the following states and territories diplomas from colleges of medicine do not now confer the right to practice medicine, an examination being required in all cases: Alabama, Arizona, Connecticut, Delaware, District of Columbia, Florida, Georgia, Hawaii, Idaho, Illinois, Indian Territory, Cherokee Nation, Iowa, Louisiana, Maine, Maryland, Massachusetts, Minnesota, Mississippi, Montana, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Oregon, Pennsylvania, South Carolina, Utah, Vermont, Virginia, Washington, West Virginia.

The following require the licensing examination only: Connecticut, Hawaii, Maine, Massachusetts, Mississippi, North Carolina (diploma after 1900), Oregon, Washington, West Virginia.

Secretaries of examining boards (or a member when secretary is not known) are given below:

Alabama: The authorized Boards of Medical Examiners are the Board of Censors of the State Medical Association, which is known as the State Board, and the Boards of Censors of the County Medical Societies holding charters from the State Medical Association. There are sixty-six of these county societies, and therefore sixty-six county boards of medical examiners.

Arizona: William L. Woodruff, Phoenix.

Connecticut: State Medical Society, Dr. Max Mailhouse, 151 Meadow street, New Haven; Homeopathic Society, Dr. E. H. Linnel, Norwich; Eclectic Association, Dr. G. H. Faber, 57 Center street, Waterbury.

Delaware: Regular, Dr. J. H. Wilson, Dover; homeopathic, Dr. C. M. Allmond, 913 Tatnall street.

District of Columbia: Dr. J. S. McLain, Nineteenth street, N. W.; homeopathic, Dr. J. B. G. Custis, 912 Fifteenth street, N. W.; eclectic, Dr. Thomas Robinson, 1204 G street, N. W.

Florida: First District Board, Dr. C. B. McKinnon, Pensacola; Second District, Dr. G. W. Lamar, Quincy; Third District, Dr. J. A. Townsend, Lake City; Fourth District, Dr. J. H. Dur-

kee, Jacksonville; Fifth District, Dr. G. E. Welch, Palatka; Sixth District, Dr. L. W. Weedon, Tampa; Seventh District, Dr. R. L. Harris, Orlando. Homeopathic Board, Dr. C. W. Johnson, Jacksonville. Eclectic Board, Dr. W. J. Sears, Kissimmee.

Georgia: Regular, Dr. J. B. Holmes, Atlanta; homeopathic, Dr. R. E. Hinman, 153 Whitehall, Atlanta; eclectic, Dr. M. T. Salter, 68 S. Broad, Atlanta.

Idaho: Regular, Dr. R. L. Mourse, Hailey.

Illinois: The State Board of Health conducts the examinations, Dr. J. A. Egan, of Springfield, being the secretary.

Indian Territory: The principal chief of the Cherokee and Choctaw Nations appoints boards of physicians to conduct examinations, while in the Creek Nation the payment of \$25 is said to be all that is required.

Iowa: Dr. J. F. Kennedy, State Capitol Building, Des Moines.

Louisiana: Regular, Dr. F. A. La Rue, 624 Gravier street, New Orleans; homeopathic, Dr. R. A. Bayley, 2628 Magazine street, New Orleans.

Maine: Dr. A. K. P. Meserve, 109 Emery street, Portland.

Maryland: Regular, Dr. J. McP. Scott, Hagerstown; homeopathic, Dr. T. E. Sears, president, Baltimore.

Massachusetts: Regular board consists of Dr. E. B. Harvey, Westboro; Dr. A. C. Walker, Greenfield; Dr. W. P. Bowers, Clinton. Homeopathic consists of Dr. N. R. Perkins, 57 Bowdoin (Dor.), Boston; S. H. Calderwood, 221 Warren (Rox.), Boston. Eclectic, Dr. Edwin B. Harvey, State House, Boston.

Minnesota: Dr. J. B. Brimhall, 7 Corners, St. Paul.

Mississippi: Dr. J. F. Hunter, Jackson, secretary of the State Board of Health.

Montana: Dr. W. C. Riddell, 118 Grand street, Helena.

New Hampshire: Dr. James T. Greeley, Masonic Temple, Nashua; homeopathic, Dr. Robert H. Hazelton, Lebanon; eclectic, Dr. Francis L. Gerald, Belmont.

New Jersey: Dr. E. L. B. Godfrey, 100 Linden, Camden.

New York: State Medical Society, Dr. Manrice J. Lewi, 5-11 Broadway, New York city; homeopathic, Dr. J. Willis Candee, 501½ East Fayette street, Syracuse; eclectic, Dr. Arthur R. Tiel, Matteawan.

North Carolina: Dr. Thomas E. Anderson, Statesville.

North Dakota: Dr. H. M. Wheeler, Grand Forks.

Oregon: Dr. Byron E. Miller, Dekum Building, Portland.

Pennsylvania: Regular, Dr. William S. Foster, 252 Shady avenue, Pittsburg; homeopathic, Dr. J. C. Guernsey, 1923 Chestnut street, Philadelphia; eclectic, Dr. W. H. Blake, 2116 N. Marine street, Philadelphia.

South Carolina: Dr. S. C. Baker, Sumter.

Utah: Dr. John T. White, 28 S. State street, Salt Lake City.

Vermont: Regular, Dr. C. W. Strobell, Rutland; homeopathic Dr. E. B. Whittaker Barre; eclectic, Dr. P. L. Templeton, 37 Loomis, Montpelier.

Virginia: Dr. R. S. Martin, Stuart; homeopathic, Dr. E. C. Williams, 115 North Fifth street.

Washington: Dr. W. Grant Tucker, Port Townsend.

West Virginia: Dr. A. R. Barbee, Point Pleasant, secretary of the State Board of Health.

# Book Notices

IN general excellence and completeness no other similar work excels that of GOULD'S STUDENT'S MEDICAL DICTIONARY (eleventh edition). The various tables scattered in abundance throughout the book are extremely valuable and useful. The illustrations are clear, the definitions concise, and the mechanical execution of the work leaves nothing to be desired. The price is also extremely low, and we heartily commend the volume to our physicians *in spe*. But while recognizing the general excellence of the volume, we cannot refrain from saying that it is far from being perfect. It contains not a few errors, both of commission and omission, which plainly show that the text has not been gone through carefully. It is stated under phosphoric acid that the latter contains 50 per cent. each of acid and water; this is wrong. The present official acid contains 85 per cent. of absolute acid. Sulphuric acid, dilute, is stated to contain 10 per cent. strong acid and 90-per-cent. water—it contains 10 per cent. *absolute* acid. Acid phosphorous,  $H_2PO_3$ , it defined as a tribasic oxyacid of phosphorus—this is incorrect: phosphorous acid is a  *dibasic* acid. The formula for tartaric acid is given as  $C_4H_6O_6$ , instead of  $H_2C_4H_4O_6$ , etc. Under Acetanilid the following statement is made: "Under the name antifebrin it is prescribed as an antipyretic." This statement sounds quite ancient, as at present acetanilid is prescribed almost exclusively as such, the name antifebrin occurring in prescriptions but very rarely. We also take exception to some of the doses. The dose of ichthyol is given as 10 to 30 grn. in twenty-four hours; this drug is certainly prescribed in much larger doses. The maximum dose of fluid extract of capsicum and of the tincture of the same drug is given as 1 dr. This is incongruous, as the fluid extract is 20 times stronger than the tincture. In the table of antidotes, under carbolic acid there is an utter failure to make mention of alcohol or whisky. We looked in vain for such a common term as *malum coxæ*, but found such obsolete ones as *abstergent* and *abstersive*. The etymological derivation of medical terms is useful and instructive, but we utterly fail to see the wisdom of giving the derivation of such words as apple, arm, black, bleach, bleed, blackberry, glass, refresh, etc. It is, in our opinion, a waste of valuable space. (Philadelphia: P. Blakiston's Son & Co. Price, \$2.50.)

THE time has gone when examining the patient's urine was considered merely a fad of the ultra-advanced physician. It is now recognized by everybody that in many diseases uranalysis is the most important—sometimes the only—guide to diagnosis. There are many good books on the subject, but certainly there is none better than PURDY'S PRACTICAL URANALYSIS AND URINARY

DIAGNOSIS. The fifth edition has been thoroughly revised and enlarged. The centrifugal method receives special attention, and a separate section on microscopical analysis has been introduced. The chemical part of the work has been carefully revised, nearly the whole subject of testing for albumen, both qualitative and quantitative, having been rewritten. We are, therefore, justified in saying that the volume under consideration is not only one of the most complete works on the subject of uranalysis, but it embodies the latest results of research in that field. (Philadelphia: The F. A. Davis Company. Price, \$3.)

Diseases of women occupy an important place in the practice of every general practitioner, and text-books and systems of gynecology are produced with gratifying frequency. PRACTICAL GYNECOLOGY, by Prof. E. E. Montgomery, covers the subject comprehensively and satisfactorily, though it cannot be said that there is much originality either in the text, illustrations, or arrangement of the subject matter. In the line of therapeutics the author is up-to-date, making mention of the newer therapeutic agents, such as Marmorek's serum, ichthyol, salol, creolin, formaldehyde, lysol, etc. Students will find the volume a satisfactory text-book, while physicians will find it useful as a comprehensive review of gynecology. (Philadelphia: P. Blakiston's Son & Co. Price, \$5.)

The value of the sphygmograph as an instrument of precision is universally acknowledged, and in his brochure, entitled THE SPHYGMOGRAPH IN CLINICAL MEDICINE, the author, Dr. Graham Steell, of Manchester, has tried to show the practical use of the instrument at the bedside or in the consulting room. Contrary to prevalent opinion, the author asserts that the sphygmograph is of least value in diagnosis, of more value in prognosis, and of greatest value as an aid in treatment. The little work is illustrated with 105 sphygmograms, and the mechanical execution is most excellent. (Philadelphia: P. Blakiston's Son & Co. Price, \$1.)

Dr. Graham Steell has also compiled a work on the PHYSICAL SIGNS OF PULMONARY DISEASE. This is a comprehensive and satisfactory review of the subject, and will be found useful by those for whom the work was intended—namely, medical students. We must in this instance also commend in the highest terms the mechanical parts of the book—the paper, printing, binding, etc. (Philadelphia: P. Blakiston's Son & Co. Price, \$1.25.)

The second edition of the MEDICAL DIRECTORY OF NEW YORK, NEW JERSEY, AND CONNECTICUT,



published by the New York State Medical Association, is a great improvement on its predecessor. Errors of commission and omission, while still present, are in this edition reduced to a minimum. Besides containing a complete alphabetical list of the regular physicians of the three states, with their street address in the larger cities, the volume is replete with much other useful data, such as information concerning medical societies, hospitals, and charitable institutions; an official list of the registered pharmacists of Greater New York; of dentists; of physicians of other schools than the regular; of physicians of New York and Brooklyn, arranged by streets, etc. One suggestion we wish to make, which, if acted upon, will increase the usefulness of the book: In the next edition the names of the pharmacists should be given with the address, and the list should be arranged not alphabetically, but by streets, as it is done in the County Medical Society's Directory. (Price, \$2.50.)

A notable task has just been accomplished by the U. S. Department of Agriculture, Division and Soils—720,000 acres of land have been surveyed, mapped, and analyzed chemically. In REPORT No. 64—FIELD OPERATIONS OF THE DIVISION OF SOILS—the details of the work are lucidly represented. Accompanying the report is a volume of maps, which are a marvel of clearness and precision. Three chapters in the report are of especial interest to the chemist, and represent much original work. They are: "The Application of the Theory of Solutions to the Study of Soils," "Some Necessary Modifications in the Method of Mechanical Analysis as Applied to Alkali Soils," and "Salts as Influencing the Rate of Evaporation from Soils."

The demise of the "Index Medicus" was regretted by all scientific workers and writers in the field of medicine. The BIBLIOGRAPHIA MEDICA, now published in Paris, is intended to replace the extinct publication. The new work contains systematized references not only to subjects treated of in the journals and magazines, but also in books and pamphlets. It is edited by Dr. M. Badouin, with the collaboration of Prof. C. Potain and Charles Richet. Each monthly number of 80 pages contains about 4,000 references and is thoroughly cross-indexed. (Paris: 193 Boulevard St. Germain. Price, 60 francs or \$12 per year.)

Part V. of DIE ROHSTOFFE DES PFLANZEN-REICHS, by Dr. Julius Wiesner, completes the first volume of the work. The present part concludes the chapter on yeast, which was begun in the fourth installment, and takes up the algæ, lichens, the various galls, and the barks, the last being most comprehensively treated. The cinchona barks have received especial attention. The thoroughness and excellence which were features of the previous divisions of the work are fully evident in part V. A second volume, similar to the

first in length, will also be published in installments. (Leipzig: Wilhelm Engelmann. Price, each part, 5 marks.)

THE TRANSACTIONS OF THE SIXTH INTERNATIONAL OTOLOGICAL CONGRESS, which met in London in August, 1899, comes to us in the form of a handsome volume of nearly 500 pages, replete with valuable papers and interesting discussions. The greater number of the papers is printed in English; others are printed in German, French, and Italian—which four languages are the official tongues of the congress. We are sure that not only the specialist, but the general practitioner as well, will find in the volume much information that will prove valuable to him in his practice.

### Publications Received.

REPORT OF THE COMMITTEE OF THE AMERICAN SURGICAL ASSOCIATION ON THE MEDICO-LEGAL RELATIONS OF THE X-RAYS, extracted from the *American Journal of Medical Sciences*, July, 1900.

AERZTLICHER LAUFZETTEL, a monthly visiting list. Published by the Aertzliche Rundschau, Munich.

URETERFISTELN UND URETERVERLETZUNGEN, von Dr. W. Stoeckel. Leipzig: Druck und Verlag von Breitkopf & Härtel. 1900.

WÜRZBURGER ABHANDLUNGEN AUS DEM GESAMT-GEBIET DER PRAKTISCHEN MEDIZIN. I Band. I Heft. Die Nebenwirkungen der modernen Arzneimittel, von Prof. Dr. Otto Seifert. Würzburg: A. Stuber's Verlag (C. Kabitzsch). 1900.

EXCISION OF HIGH RECTAL CARCINOMA WITHOUT SACRAL RESECTION. By N. Senn, M.D., Ph.D., LL.D., of Chicago. From the *Philadelphia Medical Journal*, 1899.

Win. R. Warner & Co. have issued a new THERAPEUTIC REFERENCE BOOK, FOR PHYSICIANS AND STUDENTS. Price 25 cents; flexible leather, 50 cents. The former Reference Book has been so radically revised that this, the result, may be termed an entirely new book. Many new features and tables have been added, together with much other information that will prove of value.

NEW HOME FOR J. B. LIPPINCOTT COMPANY, PHILADELPHIA.—A transaction has recently been concluded by which a number of old-fashioned dwelling-houses on East Washington Square have passed from the ownership of the heirs of the famous lawyer, Horace Binney, and will soon be torn down to make way for a fine building to be occupied by J. B. Lippincott Company, whose old home on Filbert street, above Seventh, was burned down some months ago. Possession was given September 14, and the demolition of the old structures began soon after. The site is considered a very eligible one for the Lippincott Company, as it has light on three sides, is very central, and the company will be enabled promptly to issue and increase its excellent line of medical publications by standard authorities. The new catalogue, just issued, is handsomely illustrated with excellent portraits of many of America's leading medical writers. Many historic recollections cluster about the properties just sold. They stand on the ground once occupied by the old Walnut Street Prison, built before the Revolution, and in which during the struggle the English confined American prisoners during the former's occupation of Philadelphia.



# MERCK'S ARCHIVES

OF

## THE MATERIA MEDICA <sup>AND</sup> ITS USES

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### Materia Medica and State Medical Boards

MOST State Medical Examining Boards are composed of members chosen from the Regular, the Homeopathic, and the Eclectic practitioners of the respective states wherein they act. The line of investigation concerning the qualifications of applicants for license is uniform in every branch of medical science except therapeutics and materia medica. In these the Regulars examine all who wish to practice as Regulars, the Homeopaths all who wish to practice homeopathy, and the Eclectics all who aim at following that particular cult. If there is any state in which a common examination in therapeutics and materia medica is made for applicants, we have no recollection of ever having seen the fact reported. Indeed, there seems to be a very common impression that no such examination would be tolerated, because there is no uniform ground on which the members of such boards could stand. This condition of affairs gives legislatures and the general public the impression that in the treatment of the sick all so-called medical systems hold some truth which the others through bigotry or perverseness refuse to assimilate. Where there is a skeptical tendency, this state of affairs leads directly to a denial of all virtue to medical treatment of every kind.

Would it not be well for some plan to be pursued that would direct the public mind to a more correct understanding of the true situation? Is there not some way in which sectarian examinations can be abolished and the intelligent members of the community taught that there are some facts concerning drugs and their uses to which all practitioners can subscribe? What right has the state to force any man to pass an examination on mere opinions? Until facts and principles are established by the common consent of all who have examined them intelligently, they can only be deemed mere opinions, so far as the law is concerned. Why not then do away with separate examinations on things regarding which members of these boards disagree? Why not unite upon a line of investigation concerning drugs upon which they can all agree? What is there to hinder Regulars, Homeopaths, and Eclectics from examining all candidates upon the toxicology of arsenic, atropine, strychnine, morphine, and other remedies, whether used or not used by any one or other of the members? An Eclectic or a Homeopath may be called to treat cases of poisoning with the drugs used by the Regulars, and on the other hand a Regular may be called to treat cases of

misadventure with the drugs of Eclectics or Homeopaths. A Christian Scientist or an Osteopath is quite likely to have calls to just such cases. All should, therefore, be compelled to acquire an adequate amount of information about such drugs to make them a source of public safety. There can be no difference between the requirements of any two of the so-called schools or the followers of no school in these particulars. The public good requires such knowledge to be possessed by all who pretend to care for the ailing. Without a knowledge of the symptoms of belladonna or other type of poisoning, no one can differentiate such cases from those of diseases producing similar symptoms if there is not direct evidence of a poison having been taken. To be able to know dangerous cases of poisoning from mild cases, even the physiological effects of the respective drugs should be a part of the equipment of every doctor. Since there can be no difference between the character of the toxicological and the physiological knowledge of practitioners, whatever their line of practice, there can be no serious objection made to an examination based upon such knowledge. All must agree that strychnine will kill, and in time they must all come to see that certain doses are fatal, other doses only sometimes fatal, while still other smaller doses produce in turn certain results. All must agree that morphine will give ease from pain, that sulfonal or morphine in definite amounts will cause sleep, that Epsom salt will produce a cathartic effect, that atropine will dilate the pupil, that opium will contract the pupil, that apomorphine will cause vomiting, that cocaine will act as a local anesthetic, and that cantharides will blister. Every such fact is as much a part of fixed medical science as is anatomy, and should be known to every person who pretends to treat the sick. Every member of every State Medical Examining Board should know such facts, and if he does not know them he can easily be convinced of their truth. Let each Board

begin a common examination for all candidates along such a line and give up the present method of examining along sectarian lines, and it will not be long before therapeutics of a scientific character will creep in with the common consent of every member. They will all come in time to agree that quinine will cure malaria, that sulphur will cure itch, that mercury will cure syphilis, that aspidium will destroy tænia, that ichthyol will arrest erysipelas, and that many other drugs can be relied upon to control various forms of disease, when used under proper conditions. Such state boards would thus become a center of education for their members, and in seeking for common consent there would be a survival of the fittest in therapeutics.

Let some board try such a plan, always agreeing that nothing shall be asked of a candidate upon which every member does not agree, and the influence will be quite likely to creep into all the boards of the various states. Let the public understand that there is harmony among state medical examiners, that no doubtful or disputed points of therapeutics ever enter into any of their examinations, and it will soon become apparent to everybody that when quacks refuse to submit to such examinations it is because of ignorance and not because of their objections to sectarian principles. Let it become universally known that the only reason why these boards are composite is that they may be fair to every interest, and not because they wish to defend their own respective systems. When once it is recognized that nothing is required by them but a knowledge of such facts as every honest man should be willing to indorse, and as every candidate should know in order to be able to care for the sick, then a better day will dawn for medical science and all forms of organized quackery will be on the high road to extinction.

The present state of affairs is a direct hindrance to therapeutic progress by the antagonism it produces.

# The Therapeutic Management of Dyspepsia

By C. H. POWELL, A.M., M.D., St. Louis, Mo.

Professor of Physical Diagnosis and Clinical Medicine, Barnes Medical College; Visiting Physician to St. Louis City Hospital; Consulting Obstetrician of St. Joseph's Sanitarium.

THERE is no denying the fact that of all the troublesome conditions that the medical profession is confronted with, dyspepsia takes first rank as a disturbance, in a great many instances defying every effort on the part of the physician to relieve. As is a well-known fact, the field is flooded with a long line of remedies introduced by drug establishments of recognized standing, and yet, could the results of the use of these so-called vaunted specifics be known from unprejudiced statistics and be tabulated in accordance with the honest convictions attained from the use of them, would not the number of drugs that experience has demonstrated to be of practical utility be sharply defined? Until the medical profession makes a careful study of the innumerable factors entering into the complex act of digestion, and comes to a legitimate conclusion as to the organ or set of organs that are instrumental in the digestive derangement, experience will infallibly demonstrate the utter uselessness of many drugs in the correction of the disturbance.

One class of cases depends upon renal disease, another hinges upon cardiac disturbance, and still another bears an intimate relationship to pulmonary, neurotic, and organic gastric disease. In the application of therapeutic principles for the relief of a given case, therefore, the first necessary principle to be accomplished is a most careful examination of the patient to arrive at the proximate as well as the remote cause of the gastric derangement. The diagnosis of any given case indeed constitutes the most important rôle to be assumed by the physician, for how is it possible to rectify the trouble if a full appreciation of the cause or causes is illy understood by the medical man? There is among the medical profession too great a tendency to prescribe pepsin and its compounds in the treatment of dyspepsia, and

the inefficacy of many of these compounds is a sore reflection on the ability of the attending physician to remove a condition that nine times out of ten he is attaching little importance to, and yet is an effort on the part of nature to rid the system of a surplus of material accumulated in the blood from hepatic, renal, or intestinal inactivity.

A cursory review of a few of the diseases of which gastric perversion is a distinguishing characteristic is not out of order in this paper, as the therapeutic principles involved hinge entirely upon the ultimate cause of the trouble. Take as an example the subject of an acute debauch. Here we observe the acute manifestation of gastric derangement; there is anorexia, nausea, vomiting; a broad, large tongue, heavily coated, and showing the indentations of the teeth. If we examine the right hypochondrium we will find the liver descended below the margin of the ribs, and, as we should expect, we find the bowels have been locked up for a period corresponding to the interval of the debauch. Where is the physician who would endeavor to correct this so-called bilious condition by the administration of antidyspeptic remedies? The indications for the relief of such a case are twofold—(1) to stimulate the secretions, hepatic, gastric, etc., to increased activity, and (2) to remove the cause of the trouble (namely, the alcohol) from the system. To accomplish the former we give calomel in broken doses, and to accelerate the latter we resort to lavage; indeed, there is no remedy equal to thorough and repeated washing out of the stomach in this class of cases for the speedy cure of the attendant gastric derangement. Calomel and lavage are amply sufficient to bring about the desired results, and second to these remedies are none.

Another class of cases that occasionally confront us are the subjects of cardiac dis-



turbances; there is, indeed, no cause that is more effective in giving rise to gastric derangement than mitral insufficiency associated with failing compensation. In this distressing condition the venous system is especially engorged, and the hepatic and gastric vessels in particular participate in the general plethora; as a result we find evidence of disturbed function in the act of digestion to an alarming degree. For the correction of dyspepsia depending upon this factor there is no agent or drug equal to digitalis; it is, indeed, the *sine qua non* in the treatment of the case, as without it matters will in no sense of the word become ameliorated. The internal use of sodium phosphate in 10-grm. doses every fourth hour will materially mitigate the hepatic engorgement, but the main indication in the treatment of such cases is to regulate, and strengthen, and slow the heart's action—in a word, to reduce the amount of blood distributed to the parts, and in such cases digitalis will accomplish all that is required.

Again, we are all familiar with the subjects of neurasthenia and with the term nervous dyspepsia. In this class of cases the utter uselessness of the usual line of remedies is a patent fact to every physician, and the management is different again from others. The indication for treatment consists in the administration of those drugs that allay nervous irritability, and at the same time have a reconstructive influence upon the animal economy. The different preparations of hypophosphites at once appeal to our judgment, as does arsenic, in the shape of Fowler's solution, given in gradually increasing doses; and especially ichthyol, which is the remedy par excellence in the successful handling of neurasthenic dyspepsia. Combined with this treatment, the counter-irritation over the spine with tincture of iodine extending from the nucha to the tip of the coccyx, about three inches in width, is almost invaluable, having not only a depleting action in drawing the blood from the centers to the surface, but also having a well-marked mental influence upon the patient, whose mind is necessarily attracted to the

location of smarting from the action of the iodine, and consequently is withdrawn from his bodily sensations. Lavage is occasionally also greatly beneficial in this class of subjects.

Then there is the woman who is the subject of uterine disturbances, and in this class we must include pregnancy with all of its attendant gastric manifestations. We must also include cervical erosions, the result of simple laceration or of gonorrheal, syphilitic, or ulcerative action, benign or malignant. In the treatment of any of these conditions the intelligent appreciation of the cause of the gastric irritability must be at once apparent to the reader. In the case of the pregnant subject the inutility of our so-called antidyspeptics is more forcibly impressed upon us than any other condition we meet with, because we are dealing with a reflex disturbance, a state that depends for its action upon a disturbed uterus undergoing gradual mutation, which unusual state of affairs the stomach is unable to keep pace with. For the relief of such a gastric distress we possess drugs that are sometimes beneficial, and sometimes useless. In this category we include bismuth subnitrate or subcarbonate, papain, ingluvin, cerium oxalate, wine of ipecac, and especially cocaine hydrochlorate. We have, however, yet to find the remedy that can be *relied* upon to produce the desired results in the case of the pregnant uterus. In the subject of erosions from the causes above enumerated we should direct our treatment to the cure of the cause upon which the erosion depends. If it is specific, treat, in the case of syphilis, by the internal use of mercury or the iodides; in the case of gonorrheal inflammation, by profuse vaginal irrigations of strong antiseptic solution, and local applications to the eroded os uteri of astringents and escharotics that will eradicate the *materies morbi*; or, finally, in the case of cervical laceration, repair of the rent by an intelligent trachelorrhaphy is indicated. By these means it is surprising how readily an otherwise intractable dyspepsia will respond to treatment.

We now pass to the consideration of

dyspepsia depending upon gastric ulcer and cancer. The former can best be relieved by care in diet, the cautious employment of silver nitrate, and the occasional use of an abundance of pure drinking water, best taken in the morning prior to breakfasting, and containing a half teaspoonful of sodium bicarbonate. The water had better be taken as hot as can be tolerated, and sipped slowly. In these cases, however, generally a long time is consumed in bringing about good results. In the case of gastric cancer we have heard a great deal regarding the benefits from condurango. I made use of it, however, in two cases during the past ten years without the least beneficial results. Good results have been from time to time reported from the employment of antistreptococcus serum in the treatment of gastric cancer, it having been observed that the micrococcus of erysipelas seemed to retard the progress of cancerous inflammation. I must confess, however, my failure to derive the least benefit from this source.

From what has been said, it can be readily seen how the successful management of a given case of dyspepsia depends upon the recognition of the cause of the gastric disturbance, and its removal. Passing to a closer consideration of the digestive act, we find many illustrations of digestive derangements where there is no apparent cause for the disturbance except some defect in the gastric or other secretions. In every instance we should have a due appreciation of the different processes in course of action from the admission of food into the body. The action of the teeth in masticating is the first step in the elaboration of food, whereby it becomes thoroughly broken up, and simultaneously the saliva loaded with ptyalin is converting the starchy elements into sugar. Right here is where the difficulty arises with many dyspeptics; either the teeth are defective, resulting in imperfect mastication, or the food is hastily consumed and passes into the stomach uninfluenced by the first process of digestion. The result is that the pancreatic and hepatic secretions are called upon to do extra duty which they

are unable to perform, and the distressing gastric oppression is the invariable result. In this condition advice should be given to eat slowly and masticate the food well, and a very useful adjunct to the treatment is to advise the patient to chew a piece of gum after meals, not on account of any special therapeutic property residing in the gum, but its presence in the mouth acts as a stimulant to the salivary secretions, causing a free flow of saliva, which meets the deficiency in this direction.

Then, again, the food having reached the stomach, the peptic glands may be deficient in their action; herein comes the application of the antidyspeptic agents, such as pepsin, pancreatin, papain, ingluvin, and like agents. The dilute hydrochloric acid or dilute nitro-hydrochloric acid often acts with the greatest satisfaction under these circumstances, the latter especially having well recognized properties directed towards increasing the hepatic secretions. Lavage also is a potent remedy under these conditions, acting by removing the pent-up mucus, removing undigested food, and at the same time directly stimulating the peptic glands to increased activity. The addition of sodium bicarbonate to the solution used in the lavage, together with a little common salt, and some antiseptic, is very potent for good. Too much attention in each and every case of dyspepsia cannot be given to the bowels, the kidneys, and the skin in order to effect a quick and permanent cure, each of these important adjuncts of the human economy receiving its own special notice.

**Retention of the Urine,** even if it be purely spasmodic, is sometimes exceedingly difficult to overcome. We are obliged to have recourse to hot enemas or hot poultices, and as these often fail our last resource becomes catheterization, which has many disadvantages, often leading to infection. Dr. L. Martel<sup>1</sup> has found a simple but very effective remedy, namely: The injection into the urethra of a solution of *cocaine*. In four cases of spasmodic retention the micturition became at once normal after injecting 90 to 100 min. of a warm 2-per cent. solution of cocaine.

<sup>1</sup>*La Sem. méd.*, No. 20, 1900.

# Ichthoform as an Antiseptic

By Prof. AUFRECHT

(A series of comparative physiological tests made at the Chemical and Bacteriological Institute of Dr. Aufrecht, at Berlin, Germany)

**ICHTHOFORM**, as suggested by its name, is a compound of ichthyol and formaldehyde. It occurs as a blackish-brown, amorphous, almost odorless and tasteless powder; practically insoluble in the usual solvents.

The prime object of my investigation was to determine to what extent antiseptic properties reside in the new substance, particularly as compared with the antiseptics in common use. Among other things, it was ascertained—I will say in advance—that ichthoform surpasses in bactericidal power, if but in a small degree, most of the insoluble antiseptics thus far employed, such as iodoform, iodole, and dermatol. To insure the highest reliability of the comparative results, pains were taken to conduct the experiments under precisely similar conditions in each case; the same culture and test materials, the same temperature, the same conditions of light, and the same method of testing were employed.

The subjoined table best shows the results obtained in these experiments:

1 Gm. of the antiseptic rubbed up with a little glycerin and boiled water, then added to 10 Cc. of culture gelatin, and plated.

	1st day	2d day	3d day	4th day
Iodoform.....	X	X	X	X
Dermatol.....	O	O	X	X
Iodole.....	X	X	X	X
Ichthoform.....	—	O	X	X
Control plate (without antiseptic).....	X	X	X	X

X means decided growth; O, growth arrested; —, activity destroyed.

The gelatin plates, previously infected with fresh cultures of streptococci and staphylococci, were evenly dusted over with the carefully triturated antiseptic. On the following day inoculations from these plates were made in sterile serum contained in test-tubes, and these then exposed to the proper germinating temperature for twenty-four hours. After the lapse of this time there was no growth discoverable in all ichthoform tubes, and on the second day there was only an extremely scanty growth;

whereas with iodole and dermatol, and still more so with iodoform, there was a distinct development of pus cocci at the end of the twenty-four hours.

Another experiment was then made: A piece of fresh meat was completely dusted over with ichthoform powder and exposed for a week to the germinating temperature; not a trace of putrefaction was manifest. On the other hand, untreated meat kept for the purpose of control had already a penetrating putrefactive odor after thirty-six hours. As to the rationale of the action of the new substance, it is probable that, in the employment on wounds, for instance, small quantities of formaldehyde are very gradually liberated in the nascent state, to which, largely, the quite energetic disinfectant action of the ichthoform is due.

Beside the direct disinfectant effect of the liberated formaldehyde, the formaldehyde-containing substance affords a poor soil for pathogenic bacteria in the tissues with which it comes into contact.

A number of animal experiments were next made, to determine whether ichthoform is toxic. As the article is insoluble in the usual solvents, suspensions in physiological saline solution were made in various concentrations, and injected intraperitoneally or intravenously in guinea-pigs and rabbits; dogs received ichthoform pure, per os.

The minimum initial dose injected in the six guinea-pigs—which were all of about the same weight, averaging 580 Gm. (20 oz.)—was 0.1 Gm. ( $1\frac{1}{2}$  grn.) and this quantity was increased daily by exactly 0.02 Gm. ( $\frac{1}{3}$  grn.), so that the animals received on the eleventh day 0.3 Gm. ( $4\frac{1}{2}$  grn.) of ichthoform. On the twelfth day the dose was augmented to 0.4 Gm. (6 grn.), and then increased daily by 0.1 Gm. ( $1\frac{1}{2}$  grn.) until 0.8 Gm. (12 grn.) was reached.

Two of the six guinea-pigs died on the seventh and twelfth days respectively, but



the autopsy showed nothing that pointed to an acute poisoning by ichthoform—the heart, spleen, liver, and intestines were perfectly normal.

A parallel experiment under exactly similar conditions was then made with the same quantities of iodoform. The animals died after the intravenous injection of but very small doses—0.18 to 0.2 Gm. (3 grn.); on autopsy the spleen and kidneys were perfectly intact, whereas the heart was markedly gorged with blood.

The further investigations recorded were made on two rabbits weighing 870 and 1020 Gm. (29 oz. and 34 oz.) respectively. The initial doses injected were 0.5 and 1 Gm. (7½ and 15 grn.) respectively, and these were increased daily by 0.1 Gm. (1½ grn.); so that on the eleventh day the one animal received 1.5 Gm. (23 grn.), and the other 2 Gm. (30 grn.). The urine was examined every day for albumin and sugar, but invariably with a negative result. Formaldehyde could not be detected in the urine distillate with certainty.

A remarkable fact is that the animals were perfectly well and lively during the entire period. The internal organs of the smaller showed nothing abnormal at the autopsy, made on the eleventh day.

The surviving rabbit received on the twelfth day an intraperitoneal injection of 3 Gm. (46 grn.) of ichthoform (suspended in 0.6 per cent. salt solution). At first the animal remained perfectly normal, but after ten minutes toxic symptoms set in. The respiration became jerky. After about twenty minutes there were convulsive twitchings, and the animal fell on its side and could not again get up. The temperature fell to 35.8° C. (96.2° F.). The pupils were strongly dilated. After the lapse of about two hours the convulsions gradually subsided; occasionally there were chills. Touching the abdomen gave rise to twitchings indicative of pain. Soon after the pupils began to contract, and at the end of six hours more the animal moved about and ate as usual. The next day it was left to care for itself. The urine contained faint traces of albumin, but no sugar; casts could not be discovered under the microscope.

Thus, it may be assumed that the renal function is not disturbed even by relatively large doses of ichthoform. If the latter were at all poisonous, such delicate animals as guinea-pigs and rabbits should positively have perished from the quantities used on them.

Nevertheless, I made experiments on two dogs. To the first, 1½-year-old dog weighing about 11½ lbs., 2 Gm. (30 grn.), then 4 Gm. (60 grn.), then 6 Gm. (90 grn.) and finally, 8 Gm. (120 grn.) of ichthoform were administered per os, at intervals of two days. Though the animal appeared non-playful after each feeding, direct symptoms of disease could never be observed; the urine remained perfectly normal throughout.

The second dog was almost six years old and considerably emaciated, weighing about 13 lbs. One dose of 10 Gm. (150 grn.) was given. The animal lay quiet for about an hour and a half; after two hours it became restless, would not eat, vomited once in a while, and drank water eagerly. After the lapse of twenty-four hours the animal grew weak and would eat only with repugnance. On the third day there was increased frequency of respiration and cardiac action. The urine, which prior to the experiment was rich in indican, contained neither albumin nor sugar, and but scarcely appreciable traces of indican.

Of special interest is the remarkable fact that after the administration of ichthoform there was a decided decrease in the amount of indican and ethylsulphuric acid in the urine, the latter disappearing almost completely.

The observations made by me in this direction are illustrated in the following experiment:

A patient, 38 years of age, suffering from chronic intestinal catarrh, and whose urine contained enormous quantities of indican, and in whose intestines there were copious quantities of fermenting matter, received daily doses of 4 Gm. (60 grn.) of ichthoform in milk. The ethylsulphuric acid and the total amount of sulphuric were daily subjected to an accurate quantitative determination, and the indican to a qualitative examination.

The nourishment consisted of rolls, rye-bread, butter, eggs, milk, scraped meat, soup, and coffee, coupled with a copious use of water, to which the patient had been accustomed previously.

Day	Quantity of Ichthoform	Daily amount urine in Cc.	Sp. gr. at 15° C.	Sulphate- sulphuric acid	Ethylsulphu- ric acid	Indican	Albumin
1	o	1550	1.0207	1.42 p.m.	0.276	abundant	o
2	o	1320	1.0210	1.44	0.215	"	o
3	o	1350	1.0208	1.05	0.244	"	o
4	o	1415	1.0196	1.57	0.237	"	o
5	4 Gm.	1510	1.0200	1.24	0.203	scanty	o
6	4 Gm.	1540	1.0215	1.17	0.182	"	o
7	4 Gm.	1420	1.0188	1.26	0.106	wanting	o
8	4 Gm.	1370	1.0176	1.18	0.041	"	o
9	o	1400	1.0214	1.24	0.105	scanty	o
10	o	1330	1.0210	1.27	0.117	abundant	o

According to these observations the

opinion appears well-founded that the administration of ichthoform diminishes intestinal putrefaction and the excretion of ethylsulphuric acid. Accordingly, therapeutic employment of ichthoform is indicated in cases where there is an increased elimination of ethylsulphuric acid—in acute intestinal fermentation, stasis of the intestinal contents, intussusception, diffuse peritonitis with atony of the intestine, or in tuberculous enteritis.

My investigations have shown that ichthoform is a relatively non-toxic substance, which surpasses iodoform and analogous antiseptics in disinfectant power, and is an intestinal antiseptic of the first order, while being wholly—or practically so—odorless and tasteless.

[Written for MERCK'S ARCHIVES]

## Myrtol in Affections of the Respiratory Tract

By SOLOMON SOLIS-COHEN, M.D.

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SOME ten years ago, while looking up the therapeutics of tuberculosis, for my article upon this subject in "Hare's System of Therapeutics," I learned of Eichhorst's use of myrtol for controlling some of the collateral processes connected with pulmonary tuberculosis, and his strong recommendation of this drug led me to try it clinically, and also to study its literature.

The best paper upon the drug is that by Linarix, who goes very fully into the history of the myrtle, from the time of the classical writers to the date of his thesis (Paris, 1872)—practically, poetically, prosaically, symbolically, chemically, and otherwise. He suggests that the dedication of the plant to Venus may have first led to its use in the treatment of certain affections which are, in a manner, under the patronage of that goddess.

The action of the drug is very much like that of its congeners of the terebinthinate and balsamic groups. The myrtol of commerce is an oily liquid, of slightly yellow tint, pungent taste, and characteristic odor.

It is obtained from myrtle oil by fractional distillation, and is probably a compound substance containing several products which have not been separated. Some of them are supposed to be sedative in their nature and some stimulant. Like all substances of this class it is eliminated by the mucous membranes generally and by those of the bronchial and the genito-urinary tracts particularly. Hence the two groups of affections in which it is especially employed are those of the bronchial mucous membrane and those of the bladder and urethra. Linarix, in the Paris thesis to which I have referred, records large numbers of cases of gleet and gonorrhea, as well as cases of cystitis and other inflammations of that region, in which the treatment by myrtol was very successful after treatment by other remedies had been tried and had failed. He sometimes combined it with other drugs, just as some now combine salol and methylene blue with sandalwood oil and other drugs of this group.

My own experience with myrtol is con-

fined to its use in bronchial affections, both those associated with pulmonary tuberculosis and those not so associated. I have seen excellent results in some cases and I have seen failure in others. The happiest results that I have seen from its use have been in the relief of obstinate cases of bronchorrhea, dilated bronchi, fibroid tuberculosis with bronchiectatic cavities, and in bronchitic asthma. In all these groups of cases there have been failures as well as successes, but myrtol seems to have the power in most cases of promoting healthful and diminishing unhealthful secretions. Thus, in some cases of asthma in which the paroxysms have seemed to be brought about by the effort to dislodge secretions not sufficiently moist to be easily expectorated, the administration of myrtol has seemed to increase the ease of expectoration, while later diminishing its frequency and the quantity of expectorated matter. In cases of fetid or otherwise morbid expectoration it seems to tend to diminish secretion. In particular, I remember a man of middle age, a druggist living near Easton, Pa., who thought himself the subject of pulmonary tuberculosis, and in whom a cavity had been diagnosed by an attending physician of considerable experience and unquestioned competence, the patient's progressive emaciation confirming the idea of "phthisis." Repeated study of the sputum, showing the absence of tubercle bacilli, threw doubt upon this opinion, and more careful examination led me to believe that we were dealing with a case of dilated bronchus, with perhaps some condensed tissue surrounding it. Myrtol was advised and administered, and has apparently brought about complete recovery from symptoms. The patient was under observation four years ago. Previous to that for a number of winters he had been in the habit of going to Florida. That winter he did not go, but remained well. This summer he reported himself well and weighing about 50 pounds more than at the time I was consulted. The patient's intelligence and his vocation render him a competent witness, which is not always to be said of patients. Another druggist, formerly living

in Maryland and now residing in Washington, D. C., consulted me for supposed tuberculosis with obstinate, harsh cough, about four years ago. No definite pulmonary or laryngeal lesion could be found, and tubercle bacilli were absent from the sputum. Harsh breathing, with musical rhonchi, was present at both apices. Myrtol was administered. The patient recovered and reported himself still in good health in July of this year.

These are illustrations of some of the happy results. Other illustrations might be given, especially of cases of chronic dry bronchitis and of obstinate asthma, in which this with other agents has seemed to give relief; and of cases of pulmonary tuberculosis with and without cavities in which it has materially assisted the general management. Eichhorst has used it with satisfaction in cases of pulmonary gangrene.

I have called attention to this agent not as a miracle-working substance, but as one of a number of drugs belonging to a useful group, and one which, although strangely neglected for so many years after its careful study, we can resort to from time to time with the hope of accomplishing much good. Especially marked is its influence in the checking or even complete suppression of useless, annoying, unproductive cough. It should always be given in those cases of chronic or subacute inflammations of the respiratory or urinary tract in which eucalyptol, sandalwood oil, terebene, and turpentine, for one reason or another, seem undesirable or have failed. Contrary to my experience with the terebinthines in general, I have not found in any case in which I have used myrtol that there was a tendency to produce strangury.

The dose is about the same as that of turpentine, terebene, or sandalwood oil—that is to say, from 5 to 15 min., given from two to five times in the course of the twenty-four hours. For purposes of study, myrtol has been given without any other medication in order not to confuse the result; in practice it may be variously combined. When uncombined, it may be given in emulsion, or dropped upon sugar, or placed in sealed capsules, and if given in capsules



it is well to have the patient take a little milk afterwards. In other words, the drug is to be handled as one handles turpentine.

It may be used likewise for inhalation in any convenient way, and its inhalation often serves to relieve cough and promote expectoration in chronic affections of the air-passages.

Powder, tincture, and infusion of myrtle leaves may also be used, and good results have been reported by Dr. Savignac (1876)

from their local or internal administration in leucorrhœa, in uterine and other ulcers, wounds, various skin affections, dysentery, hemorrhoids, sore throat, conjunctivitis, etc. Linarix likewise mentions the use of myrtol in diabetes. My own experience, however, is as yet purely with its use in affections of the respiratory tract, subacute or chronic, in which I am resorting to it more and more freely as my results become more and more satisfactory.

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## Euquinine

### BRIEF NOTICE ON ITS USES AND EFFECTS

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**A**BOUT a year ago I received from abroad, among other drugs and remedies, a powder called euquinine. Euquinine is tasteless quinine. I took the occasion to have it tasted by a number of persons, including several physicians and pharmacists, without telling what it was. None of them could find any bitter taste—only a flatness, if that may be called a taste.

Euquinine is the carbonic ether of quinine, and has the appearance of quinine. It is not a mixture, but a definite chemical compound with a melting-point of 95° Celsius, readily soluble in alcohol, ether, chloroform, solutions of hydrochloric acid, ferric chloride, and vinegar. In solution, the bitter taste is somewhat more marked than in powder form, but not so bitter as quinine solutions, and may be easily covered by syrup or any flavoring oil.

I have used euquinine in many cases where either quinine or some other antifebrile was indicated; have administered it to persons of various ages, from the infant to the old man. As a rule, I do not prescribe antipyretics frequently, and but very seldom in the real febrile diseases, as typhoid, pneumonia, or the exanthematous affections. Only in cases where by no other means I can reduce the high fever, especially in fevers of longer standing, in order to give the patient temporary relief from the high

temperature, I give antipyretics, and then in but a few doses.

On various occasions I have given euquinine for the last few months. The cases comprised malarial fever, neuralgia of various origin, angina, "colds in the head," influenza, headache, rheumatoid pain, whooping-cough, anemias, and gastro-intestinal disorders—in all, thirty-five cases. I prescribed euquinine by itself.

The malarial fevers reacted upon euquinine the same as upon quinine; perhaps a little more promptly and with smaller doses. In cases of whooping-cough the attacks appeared decidedly less frequent and less severe. In the other cases the effect was similar to other antipyretics and antineuralgics—although administered in rather small doses. The ringing in the ears and the gastric disturbances were markedly less than with the use of quinine. In cases of anemia, I administered it in solution of ferric chloride—the only mixture used—and also utilized the same mixture in lavage of the stomach in cases of gastric catarrh and dilatation and as an enema in cases of stubborn diarrhea, especially in affections of the colon.

In these cases I saw, as a rule, very good effects from the euquinine, without any unpleasant by-effects, so that, as far as my experience goes, euquinine may well replace the other quinine preparations.

## Treatment of Internal Hemorrhages

THERE is no subject in the entire field of medicine of more vital and more urgent importance than the one indicated in the title. Our methods of dealing with hemorrhages when they occur in situations inaccessible to the ligature, to compression, to plugging, or to other surgical and mechanical means, are still far from satisfactory. Diametrically opposite views are held by different medical men concerning the action of some of the so-called internal hemostatics, and a discussion on the subject is therefore of never-failing interest.

At the last meeting of the British Medical Association, Dr. W. G. Smith<sup>1</sup> read a paper on the subject. He said that hemorrhages, whether external or internal, are all due to similar pathological causes, and the methods by which all hemorrhages are arrested are identical, whether the bleeding be from an external, visible, and accessible spot, or from an internal and invisible region. That is, there can be no contradiction in principle between the medical and surgical treatment of hemorrhage, and we must endeavor not to do harm by our therapeutic measures. Few cases of hemorrhage from the bowels, lungs, or kidneys are in themselves fatal or even imminently dangerous. Patients die *after* hemorrhage, but not often *of* it. Many cases stop speedily and naturally if only let alone, and drug treatment for the hemorrhage *per se* is often superfluous and sometimes dangerous.

The processes by which hemorrhages can be arrested are: (1) Closure of the bleeding points mechanically (by ligature, pressure, acupressure, etc.); (2) coagulation of the blood at the source of bleeding. The latter is favored (*a*) by certain changes in and around the bleeding vessels—namely, retraction, constriction of the blood-vessels, and clotting within and without the vessel; (*b*) by diminution of the force of the heart's action—that is, by a considerable fall in blood-pressure; (*c*) by alteration in the chemical constitution of the blood, whereby clotting is favored. The

first process falls within the domain of surgery and is not at present under consideration. The second process comprises all the so-called hemostatics, both external and internal. There can be no question as to the value of external or local hemostatics. They have a definite albumin-coagulating property and they act by forming an albumo-metallic compound, and in some cases also by vaso-constriction.

But the case is different, the speaker said, when we come to consider the internal or remote hemostatics. It is true when we are in the presence of a severe internal hemorrhage the people expect us to do something; but we must beware of doing a useless or a foolish thing simply to comply with a popular prejudice. Of the vegetable astringents that are often prescribed—tannic and gallic acids—the latter is absolutely worthless; it is not even a local styptic. Tannic acid is no doubt a local astringent, but the careful researches of Stockman have demonstrated its uselessness as a remote styptic. It is absorbed into the system as an alkali tannate, which has no styptic power and is excreted in the urine as an alkali tannate and as gallic acid—that is, in a harmless and useless form. It might be thought that the alkali tannate is dissociated in the kidney, with the liberation of free tannic acid, but this is not so. It is therefore childish to continue to prescribe either tannic or gallic acids for the relief of pulmonary or renal hemorrhage. In gastric or intestinal hemorrhage large doses of tannin may be of benefit, but they are apt to create nausea and irritation of the stomach. Ergot, though recommended in every text-book on therapeutics and practical medicine, is not prescribed by the author in pulmonary, renal, and gastro-intestinal hemorrhages. Admitting the oxytocic action of ergot on the gravid uterus—a large and specialized mass of unstriated muscle—it is unwarrantable to assume it will also cause contraction of the unstriated muscular tissue in the walls of the smaller blood-vessels. But suppose ergot did cause constriction of the smaller

<sup>1</sup>*Brit. Med. Jour.*, Oct. 13, 1900.

vessels, would not this widespread narrowing of the peripheral blood-vessels cause a rise in the blood-pressure and would not that be the worst possible thing that we could do in a case of hemoptysis? And what is true of ergot is true of the other drugs recommended. As Dr. Hess, of the Falkenstein Sanitarium, says: It is difficult to understand how an internal hemostatic could directly influence a hemorrhage which usually originates in a blood-vessel, imbedded in an infiltrated and diseased mass, the wall of which, especially the muscular coat, has been considerably damaged.

Having no true internal hemostatics, what then would be the treatment, for instance, in a case of urgent hemoptysis? The first thing to do is to calm the patient and to allay his fears. Irritation of the gastric ends of the pneumogastric is to be avoided, and therefore cold drinks and pieces of ice are not to be given; besides the irritation, cold, by causing contraction of the blood-vessels of the stomach, may tend to increase the flow of blood to the lungs. Warm mucilaginous drinks are better, and an ice-bag on the chest is perhaps useful. The patient must have absolute rest, physical and mental. Give morphine hypodermically: this is the best thing to do. The bowels are to be opened freely by magnesium sulphate or calomel, and the diet must be simple and nutritious. The amount of fluid is to be restricted, and alcohol is to be withheld altogether.

In the discussion following the reading of the paper, Dr. Dixon said that experiments performed by Dr. Brodie and himself have demonstrated that all drugs which raised the blood-pressure as a result of peripheral vaso-constriction increased the total amount of blood in the lungs; he therefore believed with Dr. Smith that all peripheral vaso-constrictors were distinctly contraindicated in the treatment of pulmonary hemorrhage. He recommended urethane in hemorrhage of the bowels, stating that by the use of this drug the intestines, stomach and bladder became completely paralyzed. In gastric

hemorrhage he recommended suprarenal extract.

Dr. Kingscote favored the revulsive plan of treatment. He said that we must endeavor to attract the blood to other parts of the body, and heat should therefore be applied to the extremities, mustard to the nape of the neck, etc. Special care must be taken not to chill the body, as any local chill constricted the cutaneous vessels and increased the tendency to internal hemorrhage. For this reason apoplexy was more common in the winter than in the summer. The semi-erect position was better than the supine, because in this position the pulse wave was less vigorous.

Dr. R. M. Leslie expressed the opinion that the most important thing in the treatment of hemorrhage is the lowering of the blood-pressure. Syncope is Nature's greatest remedy for stopping hemorrhages—the heart is depressed and the general blood-pressure is greatly reduced. Of drugs, the most important one is morphine, hypodermically. It lowers the blood-pressure, calms the general excitability and soothes the mental anxiety. As regards the use of astringents, they are distinctly contraindicated in the treatment of hemoptysis, because, as Bradford and Dean have shown, ergot and other astringents actually raise the blood-pressure in the lungs. Clinical experience is also against their use, as they disorder digestion and induce constipation. Besides, morphine, rest—absolute mental and physical rest—is all-important. Another important point is the position of the patient. In every case of hemoptysis he should at once be turned on the *affected* side. The regurgitation of blood which occurs as the result of inspiratory efforts will then take place into the affected—more or less functionless—lung and will do little harm; while, on the other hand, if the patient is lying on the sound side or on the back, the blood regurgitates into the functioning lung, with the result that the breathing becomes difficult or impossible, and asphyxia may sometimes ensue.

In cases of hematuria the author has found the suprarenal gland of value:



Dr. W. E. Wynter mentioned the subcutaneous injections of gelatin solutions for the purpose of increasing the coagulability of the blood. He personally had not used it in cases of hemorrhage, but has used it in a case of sacculated aneurysm with good results, and thinks it would be advisable to try it as an internal hemostatic.

If we analyze critically the statements of the various speakers, we will see that the treatment of internal hemorrhage, especially that of hemoptysis, can be summarized in a few words: Absolute rest and morphine. Astringents are contraindicated, except in gastro-intestinal hemorrhage, and ergot as a hemostatic finds its place only in hemorrhage of the uterus.

### Thiocol in Pulmonary Tuberculosis

DR. R. J. BRAUN<sup>1</sup> states that in the present state of our therapeutic knowledge the creosote preparations are the only ones from which beneficial effects may be expected and promised with some degree of certainty, and no matter how skeptical we may be towards creosote as a specific, there are but few physicians who would not administer some preparation or derivative of creosote in the various stages of pulmonary tuberculosis. There can be no doubt that creosote exerts a beneficial influence on the course of the disease, bringing a certain number of cases to a complete cure. Whether the creosote—or its chief constituent, guaiacol—renders the soil unfavorable to the life and development of the bacilli, or whether it counteracts the action of the toxins generated by the bacilli, or favors the formation of fibrous tissue which forms a protective wall or capsule around the tubercular focus, or acts as a real bactericide—is hard to say. For practicing physicians it is sufficient to know that creosote or guaiacol may be taken by patients for weeks, months, and years without the least injury, and that in many of these cases we obtain favorable results.

During the last fourteen years the au-

thor has been treating pulmonary tuberculosis with creosote and guaiacol derivatives exclusively, and while he does not consider them in the light of specifics, he tries them in almost every case of tuberculosis that comes under his treatment. In cases of a very acute character, as the so-called galloping consumption, with a continuous fever, etc., the creosote derivatives are not employed, as in those cases it is certain that the infection is a mixed one and that toxins of other germs, besides those of the tubercle bacilli, are exerting their destructive action. The author continues:

Having satisfied ourselves as to the therapeutic value of creosote, the question remains: Which is the best form of administering it and which of its derivatives possesses the greatest advantages? We must not forget that the remedies will have to be taken for months or even years, and we must therefore administer them in such a form as will raise the least objection on the part of the patient and will have the least disturbing influence on his digestive organs. In vinous or alcoholic solution creosote and guaiacol are disagreeable to the taste, and generally after a few days the patients refuse to take them in such form. Pills and gelatin capsules have their disadvantages. Pills can only contain a very minute quantity of creosote; sometimes leave the alimentary canal undissolved; not everybody is able to swallow pills or capsules; the creosote given in capsules sometimes produces a caustic effect on the gastric mucous membrane; the creosote or guaiacol "comes up"; while in children this method of administration is altogether out of the question. Thiocol, being a derivative of guaiacol (potassium guaiacol sulphionate), is free from all the disadvantages of guaiacol or creosote, and possesses certain important advantages over all other creosote or guaiacol derivatives. It is a white powder, perfectly odorless, has a slight salty and somewhat bitter taste, is very easily soluble in water, and contains 52 per cent. of crystallized guaiacol. Patients take it without any objection for weeks and months.

These advantages, together with its non-irritability and easy absorbability, have induced the author to use it in his practice to the exclusion of all other similar products. He used it in all cases of pulmonary tuberculosis, in chronic bronchitis, in bronchiectasis with putrid expectoration, and also in one case of pulmonary abscess following pneumonia, and became convinced of its high value in these diseases.

<sup>1</sup>*Klin.-therap. Woch.*, VI, No. 38, p. 1190.

In tuberculosis the thiocol worked especially well in those cases in which the pulse was still steady and strong, though physical examination may have revealed a well-advanced destructive process. Under doses of 8 to 15 grm. of thiocol, repeated several times daily, the appetite improved, the patients felt themselves stronger, the expectoration and the cough diminished, the night-sweats ceased, and the sleep became sound and restful without any narcotic. As illustrative cases, the author gives the following:

Young man of nineteen; pretty far advanced tuberculous process of left lung; no appetite; fever in the afternoon, severe cough, with mucopurulent expectoration. Under thiocol, 1 dram daily, condition improved at once; the daily rise in temperature did not occur, which can serve as a proof that the absorption of the toxins was stopped; the appetite improved, the patient gained twelve pounds in eight weeks, and has since enjoyed relatively perfect health.

Another case was that of a girl of twenty-four, who two years previously had two attacks of hemoptysis, and afterward suffered with cough, fever, anorexia, and loss of flesh. Examination revealed numerous fine râles, but no other symptoms of pulmonary tuberculosis. Under thiocol the appetite improved at once, the cough diminished, and she gained seven pounds in three months.

In chronic bronchitis of non-tubercular character thiocol has proved remarkably efficient: it diminishes and alters the character of the secretion, allays the cough, and finally brings about a most complete cure.

For several years the author has had a little girl under treatment. The child is now twelve years old, and had been suffering during the last six years with chronic bronchitis, which occasionally underwent acute exacerbations, so that the child had high fever and expectorated large amounts of muco-purulent secretion. All possible remedies given internally or in the form of inhalations were of no avail. Thiocol, in a 10-per cent. syrupy solution, produced a remarkable effect within a short time. The cough became markedly diminished; the expectoration lost entirely its purulent character, and there were no more acute exacerbations.

In a case of pulmonary abscess, following

pneumonia, where the abscess ruptured into a bronchus, and the patient was expectorating large masses of a putrid, purulent discharge, thiocol was given with excellent results: after taking 15 grm. four times daily for several weeks, the patient gained strength and a good appetite, and the treatment finally resulted in complete recovery. The author concludes as follows:

Thiocol has decided advantages over all guaiacol or creosote derivatives; those advantages are: (1) Large quantities of it are absorbed by the system without any detrimental by- or after-effect; (2) it has not the least caustic or irritating effect on the gastric mucous membrane; (3) it can be prescribed in a number of different forms (dry on the tongue, in aqueous or syrupy solution, in pills or capsules, in cachets, etc); (4) it has no disagreeable taste or odor, and (5) it is taken by most patients without the least objection, even for months at a time. There is, therefore, no doubt but that in a short time thiocol will displace all other creosote-guaiacol-derivatives and will gain for itself a permanent place in our therapeutic treasury.

## The Treatment of Pulmonary Tuberculosis

THE treatment of pulmonary tuberculosis is reviewed by Dr. C. J. Whalen.<sup>1</sup> Creosote—or, rather, its derivative, guaiacol—still maintains the first position. To get the best effects the patient's system must be saturated with the drug. It is hard to do this by internal administration alone, as the stomach frequently rebels—and this must never be allowed to happen. The author's method is, therefore, to give the guaiacol internally, 5 min. three times a day in capsules, increasing the dose by 1 min. every day, and at the same time to apply it externally. Guaiacol, when applied externally, is rapidly absorbed, being detected in the urine in fifteen minutes; elimination continues for twenty-four hours, at the end of which time 60 per cent. of the total quantity applied to the skin will be found to have passed out with the urine. Occasionally the internal administration may be altogether done away with; the external application alone suffices.

Next to guaiacol, the author places oil

<sup>1</sup>*Medicine*, VI, No. 9.

of cloves; where the patients cannot stand creosote or guaiacol, he gives oil of cloves internally, and guaiacol externally, in doses of 3 to 4 dr. a day. Under this treatment the cough is diminished, the appetite improves, and there is a gain in weight and strength. Of other remedies, iodine, strychnine, and arsenic are of value. Cod-liver oil is extremely useful, but those who can not bear or digest cod-liver oil will find great benefit from cream, or, still better, from red-bone marrow. Raw eggs are very beneficial and the patient may take up to two dozen a day. While the stomach should never be overburdened, the patient must be given as much nutritious and easily digestible food as he can possibly stand. Alcohol is contraindicated in the early stages, but may prove useful in the advanced condition of the disease: malt liquors, which contain at the same time nutritious material, are to be preferred.

Besides the internal and endermic method of treatment we have a good adjuvant in the method of inhalation, especially where there is abundant expectoration. The remedies recommended are iodine, carbolic acid, creosote, oils of white pine, cinnamon and cloves, eucalyptol, thymol; the author prefers formaldehyde, which is inhaled by the patient morning and evening for a period of fifteen minutes. The strength of the solution of formaldehyde varies, according to patient's ability to stand it, from 2 to 25 per cent.

The most common complications of phthisis are diarrhea, night-sweats, and hemorrhage. The diarrhea is easily controlled with bismuth subnitrate in doses of 40 to 100 grn. a day, with lead acetate and opium. For the night-sweats the best remedies are atropine ( $\frac{1}{120}$  and  $\frac{1}{60}$  grn. at bedtime), agaricin and sulional; cold sponging is also very useful. In treating hemoptysis, rest is of chief importance; where there is much restlessness or coughing morphine is useful. Blood-pressure must be lowered by all means, and where recumbency, with saline cathartics and diuretics cannot accomplish this, aconite is the drug to be used. One minim of

the tincture every hour is to be given until the arteries are completely relaxed. Veratrum viride and nitroglycerin have a similar effect. Ergot is distinctly contraindicated, as it contracts the unstriated muscular fibres of the arteries, thus increasing blood-pressure and hemorrhage.

Concerning tuberculin and intrapleural injections of nitrogen, the author says that he has been disappointed in the results yielded by both.

### Guaiacolization of the System in Pulmonary Tuberculosis

THOROUGH "guaiacolization" or saturation of the system with guaiacol is considered by Dr. Weill and Dr. Diamantberger,<sup>1</sup> who since 1889 have done so much toward the popularization of the drug, the sovereign treatment for pulmonary tuberculosis. They do not limit themselves to one way of administering the remedy, but use all the methods at our disposal: the hypodermic, endermic, internal, and rectal. The object is to get the entire system under the influence of the guaiacol as rapidly and as thoroughly as possible. They use the crystallized, synthetic guaiacol exclusively, as they believe the liquid guaiacol of commerce contains many impurities, some of which are not harmless. They have had much better results since using the crystallized synthetic guaiacol; they are besides able to administer it in much larger doses.

The formula for hypodermic injection is as follows:

Guaiacol (Crystallized, Synthetic)	2 dr.
Expressed Almond Oil, sterilized	
at 120° C.....	2 dr.
Cocaine Hydrochlorate,.....	2½ grn.

Inject 15 min. of this solution into the gluteal region—not under the skin only, but directly into the tissues. The authors commence with one syringe per day, but increase the number to six or eight, and without any inconvenience. Second, the patient gets every day an enema of milk, containing from 40 to 50 drops of the guaiacol-oil: this enema is preceded by a large injection of boric acid solution to evacuate



the bowel. Third, the patient's chest is painted with the same solution of guaiacol in oil, a portion measuring 3 to 4 square inches being subjected to the painting, and a different part being selected every day. Fourth, the patient receives the following pills, taking one every three or four hours:

Guaiacol.....	15 grn.
Terpin Hydrate.....	30 grn.
Benzoic Acid.....	45 grn.
Extract Belladonna.....	1½ grn.
Extract Hyoscyamus.....	1½ grn.

Divide into 100 pills.

This intense and daily guaiacolization (in conjunction with hygienic and dietetic treatment) must be continued for several months, with interruptions of eight to ten days every three weeks.

The symptoms which improve most under this treatment are, in order: The expectoration (the quantity and fetidity), the cough, hemoptysis, fever, night-sweats, diarrhea, and the general weakness. The promptness and efficacy of this treatment are in some cases remarkable. Of course, in advanced stages, where there is considerable loss of tissue, this, like any other treatment, will prove a failure. The authors also consider their method indicated in chronic bronchitis, with abundant and fetid expectoration, in pulmonary gangrene, and in intestinal tuberculosis.

### Tubercular Hemoptysis

IN tubercular hemoptysis Dr. A. Hecht<sup>1</sup> considers quinine the most valuable medicament. Though he also prescribes ergotin, he is doubtful as to the value of the latter. He has had especially good results with Huchard's so-called hemostatic pills, the formula of which is as follows:

Ergotin .....	} of each, 30 grn.
Quinine Sulphate..	
Powdered Digitalis	
Ext. Hyoscyamus..	

Divide into 20 pills. 5-8-10 pills daily.

In one case of hemoptysis, where ergot had been given for three weeks without any effect, the above pills completely stopped the hemorrhage in three days. In another case complicated with severe diar-

rhea, lead acetate had been administered for two weeks without any results; the above pills, but with the extract of hyoscyamus replaced by extract of opium, stopped not only the hemoptysis, but also the diarrhea. The author has had a number of other cases of hemoptysis, in which the above pills proved successful, but he does not consider them conclusive, as he can not be sure that they would not have run the same course with some other method of treatment.

### Hemoptysis and Night-sweats

HEMOPTYSIS, fever, and night-sweats in tuberculous patients are considered by Prof. Senator, of Berlin,<sup>1</sup> in regard to their diagnosis and treatment. In hemoptysis absolute rest, physical and mental, is of the highest importance; the diet must be very restricted. An icebag on the chest is very beneficial, though theoretically its usefulness cannot be explained; still, it does good, diminishing pain and quieting the patient and the action of his heart.

Of medicinal drugs, the author prefers hydrastis, stypticin, hamamelis, and lead acetate. Ergot is useless. The employment of gelatin seems rational, but its subcutaneous administration is very painful. The author gives internally a 10-per-cent. decoction in tablespoonful doses; this is perfectly harmless and is nutritious besides. Sedatives are indispensable, and as such Prof. Senator recommends morphine and dionin. When the action of the heart is too turbulent, digitalis is indicated. For the fever sponging with cold water, also with spirit of camphor or menthol, is very useful; of drugs, phenacetin, lactophenin, citrophen, or pyramidon may be used. Guaiacol, in doses of 8 to 24 min., applied to the skin, reduces the temperature, but must be used with caution for fear of collapse.

For the night-sweats the author recommends inunctions with fresh lard in the evening and washing with brandy in the morning as very effective. Still more so is painting the skin with formaldehyde. If a portion of the skin be painted with

<sup>1</sup>*Therap. Monatsh.*, Oct., 1900.

<sup>1</sup>*Berl. klin. Woch.*, No. 15, 1900.

(about 15 min.) a 20-per-cent. solution of formaldehyde, then covered with cotton and gutta-percha tissue, it will not perspire for several days. Internal remedies against night-sweats are atropine, agaricin, sodium tellurate, picrotoxin, cotoin, and sulfonal.

### Home Treatment of Pulmonary Tuberculosis

TUBERCULOSIS can be successfully treated at home, according to Dr. Joseph Eischberg.<sup>1</sup> The principal two points in the treatment are fresh air and good, nutritious, easily assimilable food. While change of climate may prove very useful, it is very often just the contrary. The necessity for severing all business and social ties, the absence of friends and acquaintances, the want of occupation may cause a nostalgia so intense as to prove fatal. Altitude has also been proven to be a non-indispensable factor, because equally as good results have been obtained in sanatoria situated practically at sea-level as at those situated at a high altitude. The chief thing is that the air be outdoor air. While good, fresh, country air is of course best, city air, with its smoke, dust and other impurities, is not incompatible with a successful treatment of the disease. The patient must live outdoors summer and winter; he should also sleep outdoors, except on rainy and stormy nights. Where the patient can not be persuaded to do this, the windows of his bedroom should be wide open summer and winter. As the author says: "We must sweep away the bugbear of taking cold when a breath of fresh air enters the living room of a consumptive patient. The impure hot air weakens and enervates; the cold, fresh air revives and exhilarates the patients. Fresh air in abundance comes first in the treatment, because fresh air means better appetite and better sleep, better oxidation, better nutrition."

As we crowd the patient with air, so we must crowd him with food. And efforts should always be directed toward securing an amount of assimilation in excess

of the waste of tissue, and contrary to the plan for healthy individuals the patients should be steadily encouraged to eat more than they want. Eggs in various forms, cream, butter, buttermilk, koumyss, etc., finely scraped raw beef and game of all kinds should be given in abundance. The use of pastries, sweets, coffee, tea and alcohol should rather be avoided. As to the question between rest and exercise, we must take into consideration the patient's condition. As long as he has fever, as long as he is sick, he must have perfect, continuous rest. Exercise means tissue waste, and the poor consumptive cannot afford to be extravagant with the little vitality he has in stock. It is only when the patient is no longer a patient—that is, when he has no fever, when all symptoms of an acute character have subsided—that moderate exercise may be made a part of the daily programme.

As to medicines, creosote in small doses and bitter tonics are useful. For the night-sweats, he gives  $\frac{1}{6}$  grn. of agaricin in conjunction with  $\frac{1}{100}$  grn. of atropine; but a sponge bath, with vinegar and water, may answer as well. Where the cough and the pain are very severe,  $\frac{1}{24}$  to  $\frac{1}{12}$  grn. of heroin, or  $\frac{1}{6}$  to  $\frac{1}{3}$  grn. of dionin is very serviceable. Diarrhea is treated with benzozol and codeine.

### Dietetic Treatment of Pulmonary Tuberculosis

THE treatment of pulmonary tuberculosis, both prophylactic and curative, is discussed by Prof. J. A. Storck.<sup>1</sup> While special sanatoria and the proper climate and altitude are important, still splendid results may be obtained in hospital and private practice with proper dietetic and medical treatment, and with a due regard to the laws of hygiene and sanitation.

In the matter of diet our constant endeavor should be to make the patients take as much nourishment as possible without upsetting the stomach. Eggs in every form—raw, soft boiled, poached, or in the form of eggnog; broiled steak, poultry, raw chopped meat, milk,

<sup>1</sup> *Med. News*, Oct. 6, 1900.

<sup>1</sup> *New Orleans Med. and Surg. Jour.*, Oct., 1900.

toast bread with plenty of butter, broths, soups, oysters, clams, fresh vegetables, etc., should constitute the principal articles of the regimen. When the appetite fails, prepared artificial foods are sometimes valuable. The teeth should be taken good care of, and a mild antiseptic wash should be used frequently. For building up the patient's system, nothing is so valuable as strychnine; two other useful drugs are arsenic and iron, but iron should not be given soon after a hemorrhage, or when there is a marked hemorrhagic tendency. The author uses cod-liver oil, but only occasionally, and it is stopped at the first sign of a derangement of the bowels.

For the tuberculous process itself, the author has used numerous drugs, but the creosote derivatives have yielded the best results in his hands, and he prescribes the following combinations as a matter of routine:

Guaiacol Carbonate.....2 dr.  
Strychnine Sulphate.....½ grn.  
Divide into 24 capsules.

One capsule twenty minutes after meals.

The patients are also ordered to inhale a 40-per-cent. solution of formic aldehyde (the ordinary formaldehyde of commerce is a so-called 40-per-cent. solution), using from 20 to 40 drops on a piece of cloth twice daily. The other symptoms are treated as they arise.

For night-sweats, the author considers camphoric acid superior to atropine, aromatic sulphuric acid, zinc oxide, etc. Ten grains of it are given dry on the tongue at bedtime. For troublesome cough, the author gives a mixture of codeine sulphate, dilute sulphuric acid, spirit of choloform, and syrup of wild cherry. For vomiting, cocaine hydrochlorate and menthol in aromatic elixir is a good combination. For intercostal neuralgia: hot water compresses, counter irritants, morphine in ½-grn. doses; for hemoptysis: fluid extract of hydrastis, morphine sulphate, atropine sulphate, ergotin, ice; for the fever: phenacetin or acetanilid in 3 to 5 grn. doses, or lactophenin 5 to 10 grn.; for anorexia: nux vomica, cinchona, calumba,

and gentian often prove very valuable. In far-advanced cases little is to be done. Perfect rest, morphine hypodermically, and enemata of blood, yolk of eggs with pepsin, etc., is about all we can advise.

**Pulmonary Gangrene** has been treated successfully with *guaiacol* by Dr. Diamantberger.<sup>1</sup> The patient, a girl of fourteen, presented, when admitted to the hospital, alarming symptoms of prostration. Her temperature was 105° F., and pulse frequent and irregular; she had excruciating thirst and uncontrollable vomiting. Respiration was dyspneic; expectoration abundant and fetid, separating on standing into three layers, the upper of a grayish color and more or less mixed with air, the middle layer clear and serous, the lower consisting of muco-pus with more or less solid matter. The treatment pursued was that recommended by Dr. Weil, who has reported seven cases of pulmonary gangrene all treated successfully with guaiacol injections. A hypodermic syringeful of the following solution was injected daily:

Guaiacol ..... } of each, 150 grn.  
Expr. Oil Almond..... }  
Cocaine Hydrochlor ... 3 grn.

At night 20 drops of the same solution were given in a glass of milk. Besides, the same solution was applied every morning, alternately to the anterior and posterior surface of the chest. A piece of lint, 4 by 5 inches, was saturated with the solution, applied to the chest, covered with gauze and oiled silk, and secured in place by a light bandage.

Twenty-four hours after instituting this treatment the vomiting ceased; the temperature became normal at the end of four days. At the end of six days the fetid sputum was diminished in quantity to about one-fifth. There was marked improvement in the physical signs. At the end of three weeks the dose of the guaiacol was diminished, and at the end of two months the patient was practically well, had gained flesh and strength, had no expectoration, and no physical signs of pulmonary disease.



# PROGRESS IN MATERIA MEDICA

**Ergotin** in the treatment of *pneumonias* was said by Dr. Kleckowsky<sup>1</sup> to be the only agent, besides oxygen, which he found useful. (Section of Therapeutics, Thirteenth Inter. Med. Cong.) If administered from the day of the chill it frequently aborts the disease, and in all cases the course is shortened. Administered later in the disease it quiets the respiration and lowers the temperature. The delirium, if there is any, is arrested in twenty-four hours after the administration of the ergotin. The dose is from 45 to 75 grn. a day, dissolved in water. Where there is danger of collapse, 30 drops of tincture of digitalis or caffeine may be added.

**Unna's Ointment**, states Dr. T. G. Lusk,<sup>2</sup> of the New York Post-Graduate Medical School and Hospital, gives the quickest results in *ringworm of the scalp*, but it requires to be used with some care to avoid setting up conjunctivitis and dermatitis of the face. The composition of the ointment is as follows:

Chrysarobin .....	5 parts
Ichthyol .....	3 parts
Salicylic Acid.....	2 parts
Petrolatum .....	90 parts

This should be rubbed in and an oil-silk cap put on to prevent spreading to the face. After two or three days a soothing application may be used, such as zinc ointment.

**Methyl Salicylate** has been employed by Dr. Corma<sup>3</sup> in eighty-five cases of *acute* and *subacute rheumatism* and reported upon before the Thirteenth International Medical Congress. He has used it internally, commencing with doses of 15 to 30 min. a day, and increasing the daily doses up to 2 or 2½ dr. The formula he used was as follows:

Methyl Salicylate.....	2 dr.
Gum Arabic Mixture.....	5 oz.
Rum.....	} of each, 6 dr.
Syrup.....	

To be taken during the 24 hours.

In all cases the author found it to be equal to sodium salicylate, both in its antipyretic and analgesic power, while being better borne by the stomach. Some patients, though, could not bear it, showing the following unpleasant symptoms:

Noises in the ears, headache, vertigo, dryness of the throat, nausea, vomiting, burning in the stomach, etc. The absorption of the methyl salicylate is very rapid, as in most cases salicylic acid can be discovered in the urine fifteen to twenty-five minutes after the administration of the drug. The author has also demonstrated the presence of salicylic acid in the saliva, in the pleuritic serum, in ascitic fluid, in the serum obtained by the application of a blister, etc.

**Dionin** was used by Dr. James W. Inghalls<sup>1</sup> in a number of cases of *iritis*, and he found that the pain was quickly relieved, this condition lasting for several hours. There were no unpleasant constitutional effects. He states that a 5-per-cent. solution causes a considerable smarting, and in some cases violent sneezing; but in using a 2-per-cent. solution there was little or no smarting, the results being quite satisfactory. The weaker solution does not seem to produce chemosis.

**Calomel and Iodoform**, well mixed in equal proportions, are recommended very highly by Sprengel and Toth<sup>2</sup> as an application to *tuberculous* and *scrofulous ulcerations*. The lymphatic glands rapidly diminish in size, the suppurating area becomes cleaner, and covered with healthy granulations. No idiosyncrasy nor symptoms of intoxication have been met with.

The authors state that the good effect is due to the red iodide of mercury which is being generated by the interaction of the calomel and the iodoform, and which, being in the nascent state, is much more effective than the ordinary mercuric iodide.

**Hydrogen Peroxide** in *post-apoplectic conditions* is recommended by Dr. H. L. Winter.<sup>3</sup> As is well known, various digestive disturbances frequently follow in the track of cerebral apoplexy. The disturbances are usually of a fermentative type and depend upon a lack of tone of the alimentary tract. As a result of this alimentary torpidity, absorption of infective material takes place in the alimentary canal, and the author believes that very frequently a continued post-apoplectic high temperature may have its origin in such absorption. The administration of hydrogen peroxide has a very

<sup>1</sup>Le Bull. méd., 1900, p. 909.

<sup>2</sup>Post-Graduate, XV, p. 1009.

<sup>3</sup>Le Bull. méd., 1900, p. 909.

<sup>1</sup>Brooklyn Med. Jour., 1900, p. 693.

<sup>2</sup>Gaz. Medica de Torino, 1900.

<sup>3</sup>Med. News, Sept. 15, 1900.

good effect, not only upon the fermentative processes, but also in overcoming the alimentary torpidity, and in consequence the temperature becomes reduced. The author has been giving the peroxide in dram doses, mixed with an equal quantity of glycerin, and believes it to be superior to calomel or to any other alimentary disinfectant.

**Naphtalin** is considered by Dr. Pirnot<sup>1</sup> a most excellent remedy in *fetid bronchitis*. He relates two cases in which the fetor was so strong that it was difficult or impossible for people to stay in the same room with the patients. He prescribed the following mixture:

Naphtalin .....	1 dr.
Absolute Alcohol.....	} of each, 1½ fl. oz.
Syr. Wild Cherry.....	
Fl. Ext. Squill .....	4 fl. dr.
Tinct. Aconite.....	8 drops

Teaspoonful every three hours.

The patients also took the following capsules:

Iodoform.....	} of each, 24 grn.
Calcium Phosphate...	
Powd. Ipecac.....	} of each, 6 grn.
Ext. Hyoscyamus...	
Powd. Opium .....	4 grn.
Oil Anise .....	10 drops

Divide into 24 capsules. One every three hours.

Within a month the first patient was completely cured, while the other was practically well in eighteen days.

**Hyoscine** in *cerebral excitement* gives brilliant results in some cases, while in others it seems to have very little effect, states Dr. Noble,<sup>2</sup> and where satisfactory results are not obtained from moderate doses, it is better to withdraw it than to push it and then perhaps have a train of untoward symptoms follow. While no fatal results have thus far been recorded, it is not safe to assume that fatalities may not occur. One-sixtieth of a grain is the author's limit, and where the desired result is not obtained from such dose, he discontinues the drug. The author says there is no necessity for frequent doses—two or perhaps three a day are sufficient. Women and the aged and debilitated are most susceptible. When given in an overdose it may cause alarming attacks of suffocation from paralysis of the pharynx and vocal cords. Alcohol and quinine in small doses are valuable adjuncts, in weak sub-

jects especially. In cases of cerebral excitement with insomnia, and in mania with extreme motor activity, hyoscine is of great value, especially as opium in such cases tends to increase the excitement. Nocturnal emissions have been completely arrested by  $\frac{1}{15}$  grn. given at night.

The author does not believe that hyoscine is a direct hypnotic; it acts as such by allaying cerebral excitement and morbid motor activity.

It has also been found of great value in controlling the spasmodic cramps occasionally occurring in the lower extremities on retiring at night or upon stretching in the morning. This annoying affection can be effectively controlled by  $\frac{1}{120}$  to  $\frac{1}{100}$  grn. of hyoscine, given half an hour before retiring.

**Sodium Cacodylate** has been employed by Dr. Davezac<sup>1</sup> in a very severe and obstinate case of *pemphigus*. The patient, a man of fifty-one, had undergone all kinds of treatment without any distinct beneficial result. Corrosive sublimate baths were the only thing that would give him some relief. The author then decided to employ sodium cacodylate in a progressive dose—up to 3. grn. per day. This dose caused the patient no unpleasant symptoms, except that his breath began to have the well-known alliaceous odor. To avoid any possible untoward effects, the dose was gradually and alternately diminished and increased, and later on the hypodermic method was resorted to.

The result thus obtained in this truly desperate case was very satisfying; only on the back there could still be found some pemphigus patches, but a very large portion of the integument appeared perfectly healthy.

**Gasoline** as a *surgical detergent* was spoken of favorably at the last annual meeting of the Canadian Medical Association.<sup>2</sup> Dr. Bruce stated that for cleansing dirty, greasy hands, and for preparing the field of operation, it was much superior to soap and water and brushes. He has been so satisfied with it that a small bottle of it is now to be constantly found in his surgical bag. It is also very useful in cleansing sutures of accumulated blood and dressing powder.

Dr. J. C. Mitchell stated that in two recent very severe threshing-machine accidents, where the parts were covered with grease and dirt, gasoline proved extremely

<sup>1</sup>St. Louis Med. Era, Sept., 1900.

<sup>2</sup>Yale Med. Jour., 1900.

<sup>1</sup>Jour. de Med. de Bordeaux, 1900.

<sup>2</sup>Med. News, Sept. 22, 1900.

satisfactory. He was able to get perfect cleanliness, and the wound healed by first intention.

A report from Dr. Wm. Goldie, Toronto, showed the bactericidal effects of the substance.

The inflammability of the substance should be constantly borne in mind, and it should not be used near an exposed light. It is also better not to use it near the eyes or on the ears, as in those parts its application is quite painful.

**Ichthyol** is considered practically a specific in the treatment of *carbuncles* by Dr. R. B. McCall.<sup>1</sup> He reports a very severe case which had been neglected and which presented considerable necrosis of the tissues around the carbuncles. He applied ichthyol pure and it acted admirably, confining the affection to its present limits and causing a copious discharge. Since then he has treated a number of carbuncles and he relies upon ichthyol exclusively. He applies the drug, pure, so as to cover the entire swelling, except the apex; usually in twenty-four hours the discharge becomes more copious, pain and tension are relieved, and in a week's time or less the cure is practically complete. The apex on which the ichthyol is applied is covered with a piece of cloth greased with tallow. The application is made only once a day; after three applications the surface is to be washed thoroughly so as to remove the varnish-like coating which the ichthyol forms on drying and a new application is to be made. The author says that results of this treatment are so satisfactory that no opiates and no constitutional treatment are required, and he advises everybody to try this method.

**Salophen**, used hypodermically, is considered by Dr. Alessandro Ghetti<sup>2</sup> a sovereign remedy for *sciatica*. He used it in two patients, peasant women, who had suffered with the severest kind of *sciatica* for fifteen years and who had tried various remedies without noticeable benefit. When the author saw them there was some atrophy of the muscles of the affected limb and walking was becoming more and more difficult. The author began to inject salophen—using a 10-per cent. solution of the drug in alkaline and sterilized water—into the gluteal muscles by the aid of a hypodermic syringe with a long needle, and after the sixth injection the most important symptom, the pain, began to dim-

inish. After the fifteenth injection the cutaneous sensibility became normal and the patients could walk with much greater ease. After the thirtieth injection—the injections were made every other day—the patients returned to their homes cured. The author saw the patients fourteen months later and found that they had remained perfectly well, in spite of the fact that they had followed their usual occupations and exposed themselves to all kinds of weather. The author says that, though two is not a large number to draw conclusions from, nevertheless, taking into consideration the chronicity and severity of the cases, he is justified in recommending to his confrères a trial of the remedy in all cases of *sciatica*.

**Bismuth Subgallate** is, according to Dr. Dokerchaieff,<sup>1</sup> very useful in *gonorrhoea*. He has used it in ten acute and eleven chronic cases and claims to have obtained brilliant results. In acute cases the urethra is first washed out with a solution of boric acid or a 2-per-cent. solution of potassium permanganate. Then the following mixture is used as an injection:

Bismuth Subgallate.....	} of each, 2 dr.
Powdered Acacia.....	
Distilled Water.....	25 fl. dr.

The injections are repeated every two hours and the patient is instructed to retain the liquid each time for five minutes and then to allow it to escape drop by drop. In chronic cases the urethra is well irrigated and then a bougie of the following composition is introduced:

Bismuth Subgallate.....	10 grn.
Wool-fat.....	2½ dr.
White Wax.....	½ dr.

While the bougie is *in situ* the penis is massaged lightly, so as to bring the mucous membrane in more thorough contact with the remedial agent.

**Dionin** is reported by Dr. W. Salzmann,<sup>2</sup> of Warsaw, Poland (*Klin.-therap. Woch.*, VII, p. 811) to possess in the highest degree narcotic properties, and to be eligible for use in all pectoral diseases in which sleep is disturbed by an annoying cough. It furthermore aids expectoration, and is a good analgesic for the pains in the chest and side of phthisis, as well as in colic, cholelithiasis, and nephrolithiasis. Dionin, besides, checks to a certain extent the action of the respiratory muscles, thereby relieving the dyspnea; and it may be em-

<sup>1</sup> *Med. World*, Oct., 1900, p. 390.

<sup>2</sup> *Gaz. d. Ospedali e. d. Cliniche*, No. 114, 1900.

<sup>1</sup> *Medic. Obos.*, No. 2, 1900.

<sup>2</sup> *Alkaloidal Clinic*, Nov., p. 40.



ployed as an antispasmodic in bronchial asthma, emphysema, and chronic bronchitis. It may be given in single doses of  $\frac{1}{3}$  grn. and in daily doses of  $1\frac{1}{2}$  grn. in water or cherry-laurel water. The excellent action of dionin is usually fully developed only after three to five days.

**Carbolic Acid** has been used by Dr. Flavel Wood<sup>1</sup> in a case of *traumatic tetanus* with perfect success. The patient, a boy of twelve, had run a nail into his foot and soon after developed severe symptoms of tetanus. The treatment was as follows: 10 drops of a 10-per-cent. solution of carbolic were injected hypodermically, in a few minutes 15 drops more, then 30 drops; the dose of 30 drops was repeated every half hour all day and night. The second day the same dose was injected every two hours, and on the third day a dram of the same solution was given in glycerin per os—three times during the day. During the first day about  $\frac{2}{3}$  grn. of extract of cannabis indica was injected together with the solution, but when the pupils became contracted the drug was discontinued. On the third day of treatment the patient was able to swallow, and then recovery was rapid and complete. The author believes that carbolic acid is capable of exerting a directly antitoxic influence, provided the system be promptly and thoroughly saturated with large doses of the drug.

**Syrup of Ferrous Iodide** is recommended by Dr. J. C. Wilson,<sup>2</sup> of Philadelphia, in *gonorrheal rheumatism*. The initial dose is 30 drops, three or four times a day, the dose being gradually increased, if necessary, drop by drop, until it reaches 1 dr. Given in this manner it induces rapid improvement in most cases.

**Dionin** has been used by Dr. Julius Kramolin,<sup>3</sup> of Budapest, in a number of cases of *irritative cough*, and he has found its effects at least equal to those of codeine, and in some cases much superior. As a remedy in coughs, therefore, he gives it a place between codeine and morphine. He also tried it as an analgesic in the gastric crises and lancinating pains of locomotor ataxia, and the effect was absolutely negative, though hypodermatic injections of morphine never failed to relieve the pains promptly. Though the doses of dionin were raised to  $1\frac{1}{2}$  grn., no analgesic

effect could be obtained, though the large doses caused no disagreeable by- or after-effects. The author concludes that dionin is an excellent remedy for coughs, but that as an analgesic it cannot always be relied upon to replace morphine; but as its freedom from disagreeable or dangerous by-effects has been proved by the large doses administered, it deserves a further and more extended trial.

**The Vapor Treatment of pulmonary tuberculosis** is spoken of favorably by Dr. Couetoux.<sup>1</sup> He claims to have obtained very good results by vaporizing various antiseptic mixtures in the rooms of the patients, generally commencing with the following mixture, of which a tablespoonful at a time is allowed to be slowly evaporated:

Beechwood Creosote.....	5 fl. dr.
Tinct. Eucalyptus .....	12½ fl. dr.
Alcohol .....	5 fl. oz.

When this mixture has produced the desired result, or when it begins to produce undesirable by-effects, it is discontinued and other mixtures are substituted instead. A favorite formula of the author (to succeed the first mixture) is:

Lactic Acid .....	5 fl. dr.
Benzoic Acid.....	1 oz.
Tinct. Melissa (Balm).....	12 fl. dr.
Alcohol .....	3 fl. oz.

While the first mixture has a drying effect on the secretions, the second liquefies them and makes expectoration easy. We can thus vary the mixture according to the various indications furnished us by the patient's condition.

**Ferropyrine** has been used as a *hemostatic* in numerous cases by Dr. Braila.<sup>2</sup> In consequence of recommendations by various practitioners—Hedderich, Cubasch, Frohmann, and others—he has been induced to give it an extensive trial. He has used it in epistaxis, cuts from wounds, after ritual circumcision where other substances had failed to arrest hemorrhage, and in most cases with complete satisfaction. In six of the latter class of cases the hemorrhage had lasted for hours; the most varied hemostatics had been applied by other medical men without avail, when the bleeding was promptly arrested by the ferropyrine. Uterine hemorrhages, however, afforded the largest field for its employment. It was used for puerperal hemorrhage in four cases, after abortion in

<sup>1</sup> *Revista de Med. et Cir.* (Havana), Aug. 20, 1900.

<sup>2</sup> *Penn. Med. Jour.*, Sep., 1900.

<sup>3</sup> *Therap. Monatsh.*, Oct., 1900.

<sup>1</sup> *Bull. gén. de Thérap.*, 1900, p. 311.

<sup>2</sup> *Med. Age*, XVIII, p. 792; from *Med. Press*, Sept. 9, 1900.

eighteen, in endometritis in twenty, in profuse menstruation in nineteen, in fibromyoma in three, and in carcinoma of the cervix once. In the sixty-five cases in which it was used topically it answered expectation in fifty-nine. It failed in one case of puerperal hemorrhage, three of abortion, one of endometritis, one of fibromyoma. It is not to be expected that it will remove the cause of the hemorrhage, but the author claims that for the purpose of checking the symptom hemorrhage it is admirably adapted. In the gynecological cases it was used in a 15 to 20-per-cent. solution by means of a syringe. In some cases pain was caused, and for this reason it is well to inject only a small quantity of the solution at a time. In cases where the hemorrhage threatens to be dangerous the other internal and external appliances for arrest should not be omitted. The author gives a short history of three cases in which its employment was followed by happy results.

**Ichthargan** is a compound of silver and ichthyol. Its chemical name is silver-thiohydrocarbo-sulphonate, and it presents a brown amorphous powder, perfectly odorless and stable. It is easily soluble in water, glycerin, and diluted alcohol; but insoluble in absolute alcohol, ether, and chloroform. The aqueous solution becomes gradually darker when exposed to light; but if kept in amber-colored bottles it undergoes no change. A concentrated solution is precipitated by a solution of sodium chloride, and also by a solution of albumen; but the latter precipitate is redissolved by an excess (of albumen). Ichthargan contains 30 per cent. of silver and 15 per cent. of sulphur, both in organic combination with the bases from the ichthyol sulphonic acid. It is thus seen that in its silver contents ichthargan is the strongest of all the silver compounds; argonin containing 4.2 per cent. of silver; argentamin, 6.3; protargol, 8.3; and largin, 11.1 per cent.

It was to be expected *a priori* that this compound would prove a strong bactericide; but it still had to be ascertained whether it possessed the strong antiphlogistic, secretion-diminishing, and penetrating properties that are so eminently peculiar to ichthyol. A series of experiments were undertaken by Prof. Aufrecht,<sup>1</sup> of Berlin, with a view of throwing some light on the above points. To ascertain the penetrating properties of ichthargan pieces of rabbit's liver were immersed in a 0.5

per cent. ichthargan solution and 0.5 per cent. silver nitrate solution, respectively. After sixteen hours they were removed from the solutions and treated with ammonium sulphide. The pieces which were immersed in the ichthargan solution were found to contain a brownish black precipitate throughout their entire mass; while those immersed in the silver nitrate solution had a black coloration of silver sulphide on their surface only. This shows conclusively that ichthargan penetrates the tissues much more deeply than does silver nitrate. Further experiments showed that in 0.3 to 0.5 per cent. it had the power to prevent decomposition and putrefaction in meat, bouillon, urine, and other organic liquids. In numerous experiments with anthrax bacilli, gonococci, streptococci, staphylococci, typhoid and diphtheria bacilli, it was shown to possess a much higher bactericidal power than silver nitrate. In regard to its toxicity, experiments were made with frogs, guinea pigs, rabbits, and dogs, and it was demonstrated to be much less toxic than silver nitrate.

The author concludes by saying that as in ichthargan we have a compound containing a high percentage of silver and ichthyol; as it is odorless, perfectly neutral, clearly soluble in water and glycerin, relatively non-toxic, and of high bactericidal power and penetration, it should certainly stimulate the clinician to give it further trial in his practice.

**Fat-free Tincture of Digitalis**, as prepared by Joseph W. England, has been used by Dr. E. G. Cutler,<sup>1</sup> of Boston, and he confirms the good results obtained by other observers. This tincture is prepared by percolating powdered digitalis leaves with petroleum benzine: this dissolves out all the fat and fatty acids. The powder is then exposed to the air and light, so as to allow all traces of benzine to evaporate, and is then made into a tincture with the same menstruum, and of the same strength as the official one.

The advantages claimed for this tincture over the official one are: (1) It never causes nausea; (2) it is absorbed much more rapidly than the official: in several experiments made the effect of the official tincture became noticeable in thirty minutes, while in the case of the fat-free tincture the same effect made itself manifest in fifteen minutes; (3) it can be given in larger doses than the official tincture; (4) patients who have a great repugnance to digitalis preparations take this tincture without objection.

<sup>1</sup>*Deut. med. Woch.*, No. 31, 1900.

<sup>1</sup>*Boston Med. and Surg. Jour.*, 1900, p. 283.

**Methylene Blue** (medicinal) has been rather extensively employed by Drs. Chaleux, Vivie and Kohler<sup>1</sup> in various *gynecologic affections*. They reported their results in detail to the Society of Gynecology, Obstetrics and Pediatrics, of Bordeaux. The cases were those of chronic endometritis, metritis, parametritis, erosions of the cervix, leucorrhea, vaginitis, dysmenorrhea, metro- and menorrhagia, etc. The results have been very favorable and have led them to formulate the following conclusions:

(1) Methylene blue (medicinal), when it is employed in concentrated solution, or, still better, in the form of powder, is an important therapeutic agent in the treatment of metritis—painless, non-caustic and non-toxic. (2) It stops very rapidly metrorrhagia and menorrhagia. (3) It diminishes leucorrheal discharges. (4) It sometimes diminishes or completely suppresses pain due to the various gynecologic troubles. (5) This anesthetic action is especially noticeable in dysmenorrhea accompanied by an alteration of the uterine mucosa. (6) Affections of the adnexa and of the parametrium are very favorably influenced by the treatment with methylene blue (medicinal).

**Cocaine Injections** into the lumbar arachnoid to produce anesthesia during labor were practiced by Drs. Doleris and Malartic<sup>2</sup> on five patients. In four the administration of cocaine was necessitated by the abnormally severe labor pains, and to one it was given before the application of forceps. Although the authors recognize that the number of cases is too small for the formation of a definite opinion, the conclusions based on these five cases are as follows: (1) The uterine contractions became painless in from five to ten minutes with doses of  $\frac{1}{6}$  to  $\frac{1}{3}$  grn. (2) With doses of  $\frac{1}{3}$  grn. they did not cease to be felt, but they were painless for twenty-seven minutes. (3) With doses of from  $\frac{1}{6}$  to  $\frac{1}{3}$  grn. complete analgesia lasted one hour and twenty-eight minutes, one hour and forty-seven minutes, and two hours and fifteen minutes. (4) The uterine contractions were more energetic, more frequent, and more prolonged after than before the injections. (5) In the interval between the contractions the uterus remained in a state of partial contraction. Until further experience is gained in this direction it would therefore be prudent not to use this method in those cases

where version might be required. (6) The loss of blood appeared to be less than usual, and in a case of placenta previa the bleeding stopped spontaneously before the rupture of the membranes. (7) No effect was produced on the fetus. (8) There were no ill consequences of any importance, the principal one being slight vomiting, which soon passed off. (9) In addition to its analgesic effect the injection of cocaine seemed to increase the contractility of the uterus and to act as a vaso-constrictor of the uterine vessels.

Whether **Mercury** is *eliminated* or not by the *mammary gland* has been a disputed topic. Drs. Sigalas and Dupuy<sup>1</sup> recently instituted two series of experiments on a number of syphilitic women who were subjected to specific treatment, and on a healthy woman and a goat. The results have shown that mercury is eliminated by the mammary gland in the milk, and the method of treating a syphilitic child by administering mercury to the mother or wet nurse is therefore a perfectly rational one. But the authors have noticed that quite some time passes before mercury can be demonstrated in the milk; the length of time varies with the kind of mercurial administered and its dose, the age of the person, etc. It is this preliminary period, in which mercury is absent from the milk, that has led some investigators to the hasty and erroneous conclusion that mercury belongs to the remedies not eliminated in the milk. And in view of this "preliminary period," direct treatment of the infant must be resorted to in those acute and grave conditions where immediate mercurialization is a necessity.

**Plasmon**, according to the London *Lancet*,<sup>2</sup> is a substance containing all the nutritive principles of milk in an unaltered form, and prepared by passing a stream of carbon dioxide through milk and drying the precipitate in an atmosphere of the same gas. The important salts of the milk are retained in the preparation. The same authority states that it is a tasteless, odorless, white powder, entirely soluble in water, the solution exhibiting an opalescence similar to that of milk. The dry powder swells up in water to a gelatinous mass, which dissolves as more water is added. On boiling the solution a "skin" continually forms at the top of the liquid in the same manner as in fresh milk.

An analysis of the product made in the

<sup>1</sup>Archivos de Gin., Obstet. y Pediat., Oct. 10, 1900.

<sup>2</sup>Lancet, 1900, p. 465.

<sup>1</sup>Reported to Thirteenth Inter. Med. Congress.

<sup>2</sup>Lancet, 1900, p. 404.



analytical laboratory of the *Lancet* gave the following results: Moisture, 10.76 per cent.; mineral matter, 7.24 per cent.; milk fat, 0.70 per cent.; proteids, 81.30 per cent. As a result of experiments Dr. C. Virchow concludes that the proteid in this preparation is in the original unaltered condition, fully retaining its nourishing qualities, and therefore capable of replacing all other albumin foods. It is said to be valuable as a nutritive agent for convalescents; can be used with advantage for increasing the nutritive value of other foods, contains no alkali, and in the dry state is permanent indefinitely.

An ideal **Tooth Powder** is a desideratum. It should be a good mechanical cleanser, but should not injure or abrade the enamel; should also be antiseptic and antiacid. After months of experimentation, M. H. Fletcher, D.D.S., M.D.,<sup>1</sup> has found the following combination to answer better than anything else:

Rice or Indian Corn Flour . . . . 75 parts

Sodium Borate . . . . . 18 parts

Potassium Chlorate . . . . . 7 parts

Orris root and menthol to flavor, and saccharin to sweeten.

The author also recommends making the combination into tablets. A tablet slowly dissolved in the mouth, at frequent intervals, will alkalize the saliva, strengthen the mucous membrane, and tend to prevent decay of the teeth. It is also a valuable adjunct in the treatment of pyorrhea.

**Ichthoform** has been tested by Dr. Hugo Goldman,<sup>2</sup> of Brennbeg, in hundreds of cases of *acute gastro-enteritis* and *chronic gastric catarrh*, and he has found in it a highly effective remedy. He says that in cases of "even the severest gastro-enteritis with bloody stools, ichthoform in 5-grn. doses given every three hours acted promptly, both the diarrhea and the vomiting rapidly ceasing." To children the dose administered ranged from 3 to 4 grn., and to nursing infants it was given in 1-grn. doses in a shake mixture. In severe cases of chronic gastric catarrh, in which the long-continued administration of creosote, menthol, resorcin with chloroform water, etc., produced hardly any results, the administration of ichthoform proved highly gratifying; the digestion improved, the bowels became regular, the bloating of the abdomen and the disagreeable water-brash disappeared. In a case of pulmonary and

intestinal tuberculosis, where the lung tissue was destroyed to such an extent that no hope of recovery could be entertained, the ichthoform was given for the uncontrollable diarrhea; the number of the passages diminished, while the former odor disappeared entirely.

Besides diseases of the gastro-intestinal tract the author employed this remedy in other lines of practice. In endometritis he used it in the form of a 10-per cent. glycerin emulsion on tampons, and it proved equally effective as a similar solution of ichthyol, besides possessing the advantage of being odorless. Applied in a case of ozena, the characteristic odor was diminished, while the patient's subjective symptoms also improved. Applied to injuries and wounds, it rapidly produced healthy granulations, the healing proceeding satisfactorily without any skin irritation. So satisfactory has ichthoform proven in the treatment of those cases that the author has entirely eliminated iodoform from his armamentarium.

On the kidneys it has absolutely no irritating effects; in none of the cases treated could albumin be found, while, on the contrary, the indican present in such large quantities in the urine of gastric patients soon disappeared entirely under the ichthoform treatment.

**Urotropin** is considered by Dr. Emil Suppan<sup>1</sup> the only remedy that we possess for the internal treatment of *vesical catarrh and its complications*. He says that it must always be employed in every case of urosepsis of the aged with prostatic hypertrophy, in all the non-acute and septic bladder and pelvic catarrhs which are the consequences and complications of this growth, as also in inflammatory conditions dependent upon atrophy of the prostate, neoplasms and diverticulæ of the bladder, and stricture. Omission to do so is a serious dereliction from duty, since by its means the fatal termination may be averted in many otherwise hopeless cases; and in others its continuous administration may so influence threatening symptoms that the patient may live for many years thereafter without serious disturbance of his health. There is no possible doubt that urotropin is of inestimable value in the treatment of urinary poisoning in the aged. It is true that a certain number of these cases, even most hopeless ones, do improve spontaneously; but the percentage is small. It is indubitable also that some of them, more especially

<sup>1</sup>Cincinnati. *Lancet-Clinic*, 1900, p. 290.

<sup>2</sup>Centralb. f. d. gesamte Therap., Sept., 1900.

<sup>1</sup>Wien. Med. Blätt., No. 28, 1900.

those seen late in the disease or in extremis, do go down hill in spite of the immediate administration of urotropin in proper doses, and in spite of all other antipyretic and strengthening measures. But in a very large proportion of the cases urotropin has an undoubted and decisive effect. Hence the injunction to begin the administration of the drug at once, and continue its employment for a long time, in every case of urinary fever in consequence of cystitis.

The author has treated a very large number of prostatic hypertrophies during the last three years. Whenever a complicating cystitis of any severity appeared and whenever the symptoms of an ascending process or a beginning acute or subacute septic cystopyelonephritis showed themselves, he never failed to administer urotropin at once in large doses. His favorable opinion of the drug is based on the very satisfactory therapeutic results attained. It has done him brilliant service in some, and these not a small proportion of the cases; and he believes that he must ascribe the avoidance of a rapidly lethal termination in more than one extremely critical case at least chiefly to the drug. Absolute proof of this, of course, is wanting. He does not propose to institute any control experiments, and let any case of his with urinary poisoning be without it.

The author then relates in detail a case of hypertrophy of the prostate and bladder, with purulent urine, chills, etc., in which urotropin proved of the greatest service. He also treated seventeen cases of cystitis with similarly favorable results.

There were no unpleasant by-effects in the vast majority of the cases to which he administered urotropin. Some patients seem to have a certain idiosyncrasy for the drug, and had some headache or ringing of the ears. But these effects usually diminished when the drug was persisted in.

The author concludes: Urotropin is thus a very efficient remedy for the treatment of diseases of the urinary passages, being invaluable in certain forms; and there is no other drug in our armamentarium which will take its place.

[Urotropin is chemically hexamethylenetetramine.]

**Sodium Persulphate** has been used by Dr. Garel<sup>1</sup> in the first and second stages of *pulmonary tuberculosis*. The author states that in order to get satisfactory results we must use a chemically pure product—the so-called persodin—and it

must be used on an empty stomach. According to Nicholas, who had used it in sixteen cases, sodium persulphate acts as an excellent aperient and stomachic in doses of  $2\frac{1}{2}$  to 5 grn., and has a favorable effect on the nutrition and the general condition of the patient. The author administered the salt in doses of 3 grn. dissolved in  $\frac{1}{2}$  pint of water every morning, about an hour and a half before breakfast. Very soon, on the second or third day, the patient who had suffered with intractable anorexia became possessed of a powerful appetite; the digestion became better, and the general condition improved in every respect. To avoid habituation, the author advises to discontinue the salt after three or four weeks' administration, and to employ it again when necessity arises. The author believes that not only in tuberculosis, but in all diseases accompanied with anorexia and consequent loss of strength, sodium persulphate will play an important rôle.

The results of an *overdose* of **Borax** and also of **Sodium Bromide** are reported by Dr. Cottell.<sup>2</sup> Of the borax, a heaping tablespoonful was taken by a woman in the puerperium—by mistake for Rochelle salt. The results were a severe headache, which lasted for several days, and an eruption which lasted for a week.

The other case was that of a young woman who took about 2 oz. of sodium bromide, in the course of several hours, to relieve a headache. The symptoms were as follows: She became somnolent and slept almost the entire time for two days. When she awoke her memory was a complete blank; she talked lazily and incoherently with a thick indistinct articulation; her talk was chiefly maudlin. She could rise, but could not walk unless supported. Her sense of taste was also much impaired and the doctor entertained fears for her mind. But in about ten days she was in her normal condition. During the time strychnine was administered to her in  $\frac{1}{10}$ -grn. doses.

**Chloretone** has been experimented on by Dr. R. D. Rudolf<sup>2</sup> in the physiological department of Toronto University. He says that while it is an ideal general anesthetic for physiological work, it is contraindicated in those cases where we want the animal to recover; as under the administration of chloretone its recovery is not always a sure thing. The preliminary

<sup>1</sup>*Le Bull. méd.*, No. 69, 1900.

<sup>2</sup>*Amer. Pract.*, No. 65.

<sup>2</sup>*Canadian Pract.*, No. 6, 1900.



use of chloroform or ether increases the risk. It has little or no effect upon the pulse, respiration or blood-pressure for hours, but eventually, if the dose be large enough, these become depressed and the animal dies, the heart stopping before the respiration. The body temperature is also markedly and profoundly depressed by chloroform, more so than by any other drug, with the possible exception of alcohol. The author says that any drug that has such a marked effect on the total body heat should be used in practice with great caution, especially as it is very slowly eliminated from the system and we know of no antidote (except, perhaps, external heat).

A **Local Anesthetic** for the **Ear** is a great desideratum. As is known, aqueous solutions of cocaine and eucaine hardly have any effect on the drum membrane. Dr. Albert A. Gray<sup>1</sup> has, therefore, employed a mixture of aniline oil and alcohol as the solvent, and he claims excellent results; paracentesis of the drum membrane is entirely painless five minutes after the application of the anesthetic. The formula is as follows:

Cocaine Hydrochlorate .....	5 grn.	
Diluted Alcohol.....	} of each, 30 min.	
Aniline Oil .....		

Of this solution, 10 drops are dropped into the ear and allowed to flow to the drum membrane. Under this local anesthetic granulations of the tympanum can also be removed painlessly, the parts being cleansed and dried before applying the solution. Where the membrane is thickened and hardened a stronger solution is to be used, namely:

Cocaine Hydrochlorate .....	10 grn.
Absolute Alcohol.....	30 min.
Aniline Oil.....	70 min.

**Sodium Meta-vanadate** has been carefully investigated by Drs. Lyonnet, Martz and Martin.<sup>2</sup> It is a powerful oxidizer and to this property it most probably owes its therapeutic virtues. It was given to adults in doses of  $\frac{1}{120}$  to  $\frac{1}{60}$  grn. twice a day. Marked increase in appetite and strength and general improvement in well-being were noted; in several patients there was considerable increase in weight. These results were most marked in cases of anemia and tuberculosis. Its stimulating action on nutrition disappears rapidly if the drug is given continuously; they, therefore, advise to give it intermittently two or three

days in the week. Physiological investigations have shown that the drug did not act directly on the blood; the corpuscles were not changed, the hemoglobin was not increased or diminished; the circulation was not much affected. The drug was eliminated through the kidneys only to a slight extent. The toxic dose is about 8 centigrams ( $1\frac{1}{3}$  grn) for each kilo ( $2\frac{1}{2}$  pounds) of body-weight.

**Nitric Acid** has proved very useful in the treatment of *gonorrhoea* in the hands of Dr. Moriz Popper,<sup>1</sup> of Budapest. He used it in the strength of 1 part of acid in 300 parts of water to 1 in 400. The injections are absolutely painless and are repeated four to five times daily. In one or two days the discharge becomes less in amount, the urine clears, and in two or three weeks a complete cure is effected. Where the gonorrheal process has extended into the posterior part of the urethra the author makes once daily a deep injection with a concentrated solution of the acid ( $\frac{1}{3}$ , 1, or even 2 per cent.). The author ascribes the good effects of the nitric acid to its property of coagulating albumin, and considers it superior to silver nitrate.

**Ichthyol** was recently treated of editorially in a contemporary,<sup>2</sup> which stated: "Perhaps the value of ichthyol has already been called to the attention of the 'Summary' readers, but we think the matter of enough importance to bear repetition, especially as a suggestion made in the 'Summary' two or three years ago has not seemed to bear fruit. To come to the point, ichthyol is probably the best known remedy in all the world for *carbuncle*. Experimentally, experience has fully settled that question as far as we are concerned. No better reason justifies the most favored and successful operation of surgery or gynecology than the one that supports the use of ichthyol. Where ichthyol is relied upon, surgical interference is not required. Indeed, in the majority of cases little else is needed.

"To get the best results, as soon as the malady declares itself the remedy must be applied in full strength, spread evenly and thickly over the body of the swelling and one inch beyond its base, leaving the crater-like apex bare. An additional coat is spread over the old one, or old ones, till three such coats have been applied without removal. On the fourth day the entire surface of the carbuncle must be

<sup>1</sup>Med. News, No. 1444.

<sup>2</sup>Montreal Med. Jour., Sept., 1900.

<sup>1</sup>Klin.-therap. Woch., No. 39, 1900.

<sup>2</sup>Med. Summary, Sept., 1900.



washed off clean, and the same technique repeated and continued until the liquefied mass has been discharged.

"In the first case treated (a bad one), ichthyol was put on as described, the crater destroyed by lunar caustic and the dressing completed by campho-phenique as an anodyne. In recent cases only ichthyol has been employed. It has always done the work effectually, painlessly, speedily and satisfactorily. The reader cannot afford to overlook this remedy, for it is both safe and sure. Try it on the first case and be convinced by a demonstration."

**Stimulants** are very dangerous in *puerperal eclampsia*, according to Dr. A. S. Bleyer.<sup>1</sup> They only increase the tendency to convulsions. What we want is sedation, and sedation pushed to the last limit of safety. Digitalis and the hot pack are contraindicated. The remedies to be used in this dangerous condition are large doses of veratrum viride, chloral hydrate, and morphine, and frequent rectal injections of saline solution. A case is reported which illustrates the above points and the author says that during the stage of high irritability the condition was invariably aggravated by any sort of stimulation; digitalin, for instance, bringing on twitchings and convulsions in seven minutes on three occasions, these being preceded by restless tossings. Veratrum viride, on the other hand, always produced an amelioration of the symptoms.

**Collodion** in *enuresis nocturna* has been employed by Dr. Somways<sup>2</sup> with success. He covers the opening of the urethra with a layer of collodion; the pressure of the urine awakens the child, and it thus becomes gradually weaned from the habit of bed-wetting.

**Dionin** is, according to Dr. Daxem-berg,<sup>3</sup> an excellent local irritant in *ophthalmic practice*, indicated in those cases where it is desirable to increase the circulation and affusion of lymph. It gives good results in affections of the cornea—excepting cases of recent injury of the epithelium—and it clears up exudates and opacities in the anterior chamber and in the vitreous. It does especially good service in scrofulous affections of the cornea, in which cases the author uses it now instead of calomel and the oxide of mercury ointment. He has seen the cornea

clear up in a short time, old cicatrices become less prominent and exudates in the anterior chamber disappear entirely. As mentioned above, the drug is contraindicated in recent injuries and in recent ulcers of the cornea and in penetrating wounds of the eyeball.

**Herpes Zoster** is believed by many to be due to an infective process, but Dr. Lusk<sup>1</sup> believes it to be due to an irritation of the nerves, particularly at the point of their bony exit. In intercostal zoster, where there is much pain, he applies the actual cautery over the angle of the rib and spine at the exit of the nerve. As an astringent, antiseptic, and drying application, he recommends the following:

Ichthyol.....	} of each, 2 dr.
Magnesium Carbonate..	
Zinc Oxide.....	
Water.....	to make 4 oz.

This is sopped on and a binder applied to prevent friction.

A 5-per-cent. solution of ichthyol in collodion may be used. Where rheumatism exists, salicylates may be given in large doses. Cannabis indica and arsenic give relief, though the latter drug, when long continued, is known to be the cause of some cases of zoster.

**Melancholia**, especially that type which is characterized by attacks of anxiety and which is in great part the result of vasomotor disturbances, is, according to Dr. Paoli,<sup>2</sup> greatly benefited by *nitroglycerin* and *sodium iodide*. These drugs relieve the spastic condition of the peripheral blood-vessels, overcome the attacks, which in these patients often come on periodically in an aggravated form, and act as a prophylactic. The author prescribes the drugs as follows:

Spirit Nitroglycerin .....	30 drops
Water .....	10 fl. oz.

Tablespoonful twice a day.

This is administered for the first ten days of each month, and the other twenty days the following mixture is given:

Sodium Iodide .....	2½ dr.
Water .....	10 fl. oz.

Tablespoonful twice a day.

To counteract the destructive action of the iodine on the blood corpuscles, glycerophosphates and strychnine arsenate are given hypodermically. The patient is restricted to a milk diet, and the functions of the heart and kidneys are carefully attended to.

<sup>1</sup>Med. Brief, 1900, p. 1781.

<sup>2</sup>British Med. Jour., No. 9, 1900.

<sup>3</sup>Woch. f. Therap. u. Hyg. des Auges, No. 32, 1900.

<sup>1</sup>Post-Graduate, XV, p. 1008.

<sup>2</sup>Rif. med., 1900.

**The Morphine Habit** is usually incurable, in the opinion of Dr. James H. McBride,<sup>1</sup> unless the patient can be kept under surveillance in an institution. He advocates the withdrawal of the drug so gradually as to cause no serious suffering, and condemns the substitution of any other narcotic during the process. During the reduction period, the general feeling of uneasiness and the pain in the limbs are most satisfactorily relieved by frequent hot baths. Sometimes rubbing the legs with alcohol and ether is beneficial, as is also daily massage. To quiet the nervous system, mixed bromides in moderate doses are advised, with a caution against the production of bromism. Quinine has proved to be a useful tonic in some cases, but detrimental in others. Of more strictly nervous tonics, nux vomica is considered by far the best. It should be given three or four times daily in pill form, in doses of  $\frac{1}{2}$  grn., increasing to  $\frac{1}{4}$  or  $\frac{1}{2}$  grn. Next to nux vomica and its alkaloid, strychnine, extract of coca has been the most useful remedy of this class. Coffee is often beneficial, but caffeine is practically worthless. For sleeplessness no routine hypnotic can be relied on. Chloralamide gives excellent results in some cases. The same may be said of trional. Chloral and hyoscyamus may be effective when all other remedies fail.

**Severe Hemoptysis** can, in the opinion of Dr. E. Aronsohn,<sup>2</sup> be subdued by two very common articles—namely, *milk* and *salt*. Milk injected into the rectum has, in the author's hands, arrested severe hemorrhage from the lungs in several cases which resisted all other treatment. In certain other cases eating salt proved useful. One of his patients, who would frequently have attacks of hemoptysis in the street, would apply for some salt at the nearest house, and it would never fail to arrest the hemorrhage. The author believes that the salt acts as a revulsive through producing hyperemia in the intestinal canal. [The value of salt in stopping pulmonary hemorrhage is known to every layman in this country.—ED.]

**True Hemorrhoids**, according to Dr. Matthews,<sup>3</sup> can never be cured without operation. If patients claim to have been cured by other means, they had not hemorrhoids. It was probably a little pruritus or so-called itching piles, which was relieved by some simple application to the mucous membrane. But no internal hemorrhoidal

tumor was ever cured without an operation or atrophied by age. But if the patient will not submit to an operation, demanding only palliative treatment, the best thing we can advise him is to inject cold water into the rectum. Hot water is injurious. As a soothing ointment the following is the best:

Morphine .....	6 grn.
Cocaine Hydrochlorate .....	12 grn.
Calomel .....	40 grn.
Vaselin .....	1 oz.

If itching is a prominent symptom,  $\frac{1}{2}$  to 1 dr. of menthol to an ounce of vaselin is the very best agent to use. The patients must also avoid straining, and should therefore use some mineral laxative water, and should inject moderately cold water before each movement.

**Carbolic-acid Poisoning** is so frequent that every case of recovery is of interest. Dr. Conally<sup>1</sup> reports the case of a child two years old who had taken about  $\frac{1}{2}$  oz. of carbolic acid mixed with 1 oz. of glycerin, which had been prescribed as a local application. Convulsions rapidly supervened and followed one another in rapid succession. Upon arriving, the doctor at once administered 2 oz. of cider-vinegar; the dose was twice repeated at intervals of an hour, so that in all 6 oz. of cider-vinegar were taken. Nothing else was given except water to relieve the thirst. The next morning the child was practically well.

**Strychnine Poisoning** is so generally fatal that cases of recovery are interesting. The patient, a woman of sixty-seven, had taken an overdose of extract of ignatia (*Strychnos Ignatii*) and the physicians, Dr. Lettis and Dr. Potts,<sup>2</sup> found her on the floor in a state of tetanic convulsions and struggling violently. A subsequent convulsive attack threatened to result fatally; respiration stopped; she became quite cyanosed; wrist-pulse could not be felt; the eyeballs protruded from their sockets, and the tongue was thrust half-way out. As soon as the convulsion relaxed, a stomach-pump was passed and the stomach was washed out repeatedly with warm mustard water and with plain water. An immediate improvement was noted. An hour later the patient stated that she was much better, complaining only of great giddiness, with pains in the loins and numbness of the legs. Merely touching the eyebrow produced considerable twitching of the entire body. Potas-

<sup>1</sup>N. Y. Med. Jour., LXXII, p. 269.

<sup>2</sup>Deut. med. Woch., Aug. 2, 1900.

<sup>3</sup>Med. Age, Sept. 10, 1900.

<sup>1</sup>South. Pract., Sept., 1900.

<sup>2</sup>Lancet, 1900, p. 486.



sium bromide was then administered in small doses, and in about four hours the patient had so far recovered as to be able to get up and walk to another floor. She had some twitching for the next twenty-four hours, but otherwise she felt well.

**Gastric Ulcer** is treated by Dr. Wm. Stuart-Low<sup>1</sup> with *mucin* with very good success. Mucin is the principal constituent of mucus, is present in every secretion of the body, and is prepared for medicinal purposes from animal bile, which contains it in large amount. It is a dark-brown powder, almost tasteless and odorless; is precipitated by acetic acid, and dissolved by dilute alkalis. When a small quantity of it (10 grn.) is added to a glass of water and gradually heated to the temperature of the body, a sticky, viscid, almost glue-like solution is obtained. This, according to the author, also takes place in the patient's stomach, and the sensitive and inflamed gastric wall is thus protected by a soothing, healing coating. The author gives the mucin in the form of a powder, together with sodium bicarbonate—10 grn. of each in a cachet—three times a day before meals. The painful sensations in the gastric region become immediately relieved; constipation is also overcome. Of course, the patient's diet is also carefully regulated, to consist chiefly of foods having a soothing and protecting action, such as animal jellies—calf's foot, mutton, and chicken jelly—and thin corn-flour and freshly prepared marshmallow-jujube.

**The Pneumonic form of the Plague** is extremely fatal, and Dr. J. Bell<sup>2</sup> knows of no reported cases of cures, except the one under consideration. The patient was a sailor, twenty-four years of age, strong and healthy. When admitted to the Government Civil Hospital, in Hong Kong, his temperature was 101°, and kept on rising gradually for the next two days. At the end of three days his temperature was 105°, his tongue dry and furred, and he was deeply apathetic. There was no pulmonary dullness, but all over the lung area coarse râles could be heard. There was profuse expectoration of thick, bloody sputum, which on examination showed the presence of the plague bacillus. Pure carbolic acid was then administered, 12 grn. every three hours, and strychnine and digitalis were given hypodermically every four hours. On the day treatment was begun the patient was delirious, and his temperature ranged between 105° and

106.4°. On the next day there was a gradual but marked improvement, the temperature falling to 102°, and only rising to 103.4° in the evening. Seven days after admission the sputum was no longer bloody. The carbolic acid was continued for four days longer, and then convalescence was rapid. The effect of the remedy was marked, and it is now being tried in every case admitted to the plague hospital. In all, the patient received 280 grn. of carbolic acid.

**Syncope**, with dangerous symptoms of poisoning, from a *soap enema* is not a frequent occurrence. Dr. A. G. McGowan<sup>1</sup> reports two cases. One patient was an adult thirty-one years old, to whom an enema of 1 pint (made up with the common variety of yellow soap) was given; the other was a child, nine years old, half a pint being injected in this case. In both the enemata failed to act, and in about twenty minutes after administration the patients suddenly collapsed and fell into a coma from which they could not be aroused. The following symptoms manifested themselves in each case: Respiration shallow and irregular, face deeply cyanosed, pulse weak and irregular, pupils equally dilated and insensible to light, corneal reflex absent, limbs absolutely flaccid, with loss of all reflexes; skin cold. Later on some perspiration about head and neck; mucus rapidly accumulated in the pharynx, necessitating repeated swabbing with gauze tampons. (The enemata later on returned, but without movement of the bowels.) This condition lasted for nearly two hours; then gradually the reflexes and consciousness began to return. Vomiting and diarrhea set in and continued intermittently for two days, leaving the patients in an exhausted condition. There were no other sequelæ. The author's theory is that the symptoms of intoxication were due to ptomaines, which developed in the decomposed fat which is frequently used in the manufacture of soap.

**Puerperal Eclampsia** was one of the prominent subjects discussed before the Thirteenth International Medical Congress, Section of Obstetrics. Prof. Mangiagolli, of Paris, said that he considered veratrum viride our most useful drug for that condition. He had used the fluid extract during the last four years in all cases of eclampsia—that occurring during pregnancy, during childbirth, and in the puerperium—and is highly satisfied with the results. Out of eighteen cases seventeen recovered.

<sup>1</sup>*Lancet*, No. 4019, p. 730.

<sup>2</sup>*Lancet*, 1900, No. 4010, p. 21.

<sup>1</sup>*Australas. Med. Gazette*, 1900, p. 325.



Prof. Stroganoff, of St. Petersburg, prefers the following method of treatment: After the first attack he gives narcotics, preferably morphine, in conjunction with chloral, and in order to ward off attacks he gives those drugs for from twelve to forty-eight hours. The respiratory and cardiac functions are carefully watched; to stimulate the respiration the patient's position is frequently changed, dry cups applied, etc.; to support the heart, artificial serum is given per rectum, or digitalis per os. Delivery is hastened, provided the life of the mother or child is not seriously endangered by the procedure. Under this treatment the number of attacks considerably diminishes, and the infantile mortality is greatly lessened. As to the mothers, out of ninety-two cases there were only five deaths.

Dr. Porok, of Paris, said that formerly he treated eclampsia by venesection and simultaneous administration of chloroform or chloral, and out of fifty patients fourteen died. He then began to use subcutaneous injections of normal salt solution, and had twelve deaths in forty-one cases. But since he introduced his new method of treatment, basing it on the belief that eclampsia is a symptom of intestinal auto-intoxication, he has had the best results—out of forty-seven cases only three deaths. His treatment consists in washing out the intestinal canal with large amounts of water—30, 40 to 50 quarts, in withdrawing about  $1\frac{1}{2}$  pints of blood, and injecting about 3 pints of a normal saline solution. This treatment may be repeated according to indications. The child is delivered as rapidly as possible—by forcible dilatation, if necessary.

Prof. La. Torre, of Rome, said that eclampsia was a very complicated affection, and the treatment must vary accordingly. He is in favor of venesection, large injections, diaphoretics, and large doses of morphine ( $1\frac{1}{3}$  to  $1\frac{1}{2}$  grn.) to quiet the attacks.

**Fever** in infants needs careful treatment. Dr. McClanahan<sup>1</sup> believes in the simple methods and discountenances the latest antipyretics. The degree of fever alone is not of so much importance as its continuousness. Cold water is, in his opinion, the best antipyretic. He places the child in the mother's lap on a rubber sheet and irrigates the intestinal canal through a No. 8 or 10 catheter with the fountain syringe about 4 feet high. At first warm water is used, then cool and then cold; about  $\frac{1}{2}$  pint of cold water is left in the bowel. Besides intestinal irrigation he

uses the wet pack—first warm, then cool, then cold. In convulsions he uses cold to the head and heat to the feet. Drugs he uses seldom; when one is needed he gives phenacetin in 1-grn. doses every hour; also chloral in the rectum— $\frac{1}{2}$  grn. for a child six months old. The latter is very valuable when there is great restlessness. When the urine is light-colored and acid he gives large doses of potassium citrate well diluted.

**Eczema** in all its forms, and psoriasis are favorably affected by *silver nitrate*, applied in the form of a 1-per-cent. solution, according to Dr. J. C. Dunn.<sup>1</sup> It acts as an excellent stimulant in those diseases, and the author says that he often applies chrysarobin and salicylic acid to one side of the body and the silver nitrate to the other, and after a week's treatment he allows the patient to decide which treatment he prefers. Other diseases in which the silver nitrate has proved curative are: Erythema, acne, herpes zoster, impetigo, lichen planus, and apparently an incipient epithelioma. In inflammatory or parasitic skin diseases no other remedy is comparable to silver nitrate, which seems to have an alterative effect on the nutrition of the skin.

**Prolapsus of the Anus** is, according to Hajech,<sup>2</sup> greatly benefited by ice. After each evacuation he introduces into the rectum an ice suppository, 3 inches long and 1 inch wide. The ice is wrapped into iodoform gauze.

A case of severe **Atrophic Ozena** cured by *citric acid* is reported by Dr. P. J. Zaalberg.<sup>3</sup> The patient, a boy of nine, had suffered for years with a fetid discharge from the nose; the nasal bridge was sunken and inside the nose was filled with extremely fetid scabs. The author treated him with nasal douches, boric acid, phenol sulphuric acid, etc., but with hardly any success. He then applied a mixture of equal parts of finely powdered citric acid and sugar of milk by means of a pulveriflator. In a few days there was an unmistakable improvement. In three weeks treatment of any kind was discontinued, as the patient was completely cured. The patient was examined six months later; while the condition of atrophy still persisted, there had been no return of either the fetor or of the scabs.

<sup>1</sup>Med. News, No. 1446.

<sup>2</sup>La Sem. méd. 1900.

<sup>3</sup>Monats. a. Ohren. Kehlkopf-Nasen, Krank., Aug., 1900

In **Laryngeal Tuberculosis** Prof. A. Fasano<sup>1</sup> highly recommends the following combination, to be used by insufflation:

Thiocol .....	6 grn.
Cocaine .....	12 grn.
Boric Acid .....	60 grn.

The best results are obtained in those cases in which the laryngeal tuberculosis is of primary origin.

Two cases of **Carbolic-acid Poisoning** are reported by Dr. Moffat Flynn<sup>2</sup> in which *milk* proved an effective antidote. The first case was a young married woman, who in a fit of despondency took  $\frac{1}{2}$  oz. of the acid with suicidal intent. She was made to drink over a pint of milk; later an emetic was given and also strychnine, as her heart began to fail. She recovered.

The other case was that of a child to whom the mother had given by mistake a mixture of carbolic acid and glycerin. The child was made to drink a large amount of milk, and recovered.

An interesting case of **Amblyopia** produced by the ingestion of a large amount of a cheap essence of ginger is reported by Dr. Edward Stieren,<sup>3</sup> of Pittsburg. The patient in question, a man thirty-six years of age, healthy and robust, was in the habit of going out on a spree every six or eight weeks, the debauch lasting from three to four days. One Sunday, while bent on a spree, he found himself in a "dry" community, where no liquor could be obtained. He procured a dozen bottles of Jamaica ginger essence from a grocer and drank them all within a short time. The bottles held about 1 oz. each. He soon fell into a drunken sleep and about three hours later awoke totally blind. No other symptoms, except some uneasiness in the stomach and a dull headache.

On examination the following condition was found: Pupils widely dilated and unaffected by light or accommodation; eyes wide open and the balls in constant motion, which could, however, be controlled by will; conjunctivæ slightly injected; no change in disks or vessels, and fundi normal, beyond a slight amount of retinal edema. Vision was almost nil; he could see a hand moved at 12 inches; incandescent light had a red appearance to him. Cornea almost totally insensitive to touch with camel-hair pencil. Treatment consisted in confinement to bed in a darkened room, hot foot-baths, administration of

calomel and jalap and of pilocarpine ( $\frac{1}{8}$  grn.), hypodermically. Active diaphoresis and catharsis set in and the next morning patient was able to count fingers with either eye at 10 inches. Pilocarpine and calomel were continued for the next two days and were then replaced by 20-grn. doses of potassium iodide. Vision continued to improve until it became practically normal in a few days.

The author believes that this was a case of acute retrobulbar neuritis of toxic origin, and hints that it probably was not the ginger, but the cheap adulterants and wood alcohol, from which the grocers' so-called essences of ginger are made, that caused the amblyopia. [From our knowledge of the way the various cheap essences are made, we will say that it is more than probable that the author's hypothesis is perfectly correct.—Ed.]

**Epilepsy** is treated by Dr. M. Kothe<sup>1</sup> by means of *bromipin*. He keeps his patient in bed for several weeks, giving a tepid bath of short duration twice a week. At the same time he administers bromipin by the mouth—75 grn. three times a day; or he injects  $\frac{1}{2}$  oz. into the rectum at bed-time. In the course of six or seven weeks the dose is increased up to 10 dr. a day; this dose is maintained for three weeks, and is then gradually reduced.

**A Syphilitic Gumma** of the spinal cord has been successfully treated by Dr. F. W. Campbell<sup>2</sup> with very large doses of *potassium iodide*. The patient was a man of a highly neurotic temperament, who before the onset of definite symptoms suffered from repeated attacks of insomnia of a very severe character. Later on the two most prominent symptoms were retention of urine and loss of power in the lower limbs, the loss of power being absolute. The patellar reflex was about normal; the pulse varied from 80 to 96; temperature was never above 99° F.; the stomach was in a fairly good condition all the time. A consultation was held and a diagnosis of a tumor of the spinal cord, situated about the first lumbar vertebra, either syphilitic or sarcomatous in character, was agreed upon. It was decided to give potassium iodide in increasing doses. It was given at first in dram doses, three times a day, and gradually increased until the patient was taking 500 grn. a day. The patient recovered complete control of his lower limbs and is now in good health.

<sup>1</sup>Amer. Jour. Med. Sci., Nov. 1, 1900, p. 618.

<sup>2</sup>Med. Brief, 1900, p. 1639.

<sup>3</sup>Penn. Med. Jour., Sept., 1900.

<sup>1</sup>Med. News, Oct. 13, 1900, p. 574.

<sup>2</sup>Canad. Jour. Med. and Surg., Oct., 1900.

# Of General Interest

**Fake Clinical Reports.**<sup>1</sup>—One of the most prolific writers, so-called, of the age resides in St. Louis, and during the past two years it has frequently been our privilege to decline to publish matter from his pen. During this period he has written a most marvelous assortment of articles, any one and all of which are enough to disgust the intelligent reader, for they are "fearfully and wonderfully made." How they get past the editor of a respectable journal is a mystery. We are making a collection of these papers, which for convenience we are calling the "Hooker Library," and we shall use it as a clincher where manufacturers do not understand why our pages are not open to him. We were anticipated in speaking on this subject by the editor of the *Regular Medical Visitor*, and we can devoutly say amen to every word of his statement of the case; but we would go a step farther; there are others scattered over the country who will, for a small consideration, favorably report on any preparation; the primary requisite is the *consideration*; whether the product have real merit or not cuts very little figure, as in all probability the material sent for the test never reaches a patient. A most contemptible thing is a man who falsifies in a clinical report, he is a disgrace to the profession to which he unfortunately belongs, but worse by far is he who deliberately makes his whole report from imagination; he perpetrates a wrong on the manufacturer, on the profession, and on the public. Experience has proven to us that the manufacturer is almost invariably sincere in his desire for an impartial and thorough test, he expects his product to stand or fall on its merits; he neither purposes nor desires perjured reports, and when he gets them he is buncoed for more than the money he may have paid for a thorough clinical test. It is the province of the medical editor to protect the victims of these fakirs; a little investigation has shown us that the names of the men who are doing this sort of work are well known to the average editor. By uniformly closing our pages to them we may experience some temporary inconvenience, but the ultimate result will be happy for all those most vitally concerned.

[All of which has our hearty approbation.—  
EDITOR MERCK'S ARCHIVES.]

**Opium and Change of Personality.**<sup>2</sup>—A curious and very suggestive case is reported in the *Revue de l'Hypnotisme* of a young woman who several times became a victim of the opium habit. At such times she exhibited a character and habits entirely unlike those of her normal

and healthy condition. In the latter she was restless, fond of change and travel, impulsive, passionate, and addicted to jealousy. As soon as she began to use opium she became quiet and sedentary in habits and tastes, careful and calculating in matters of money, instead of lavish and reckless as before. Having been cured of the opium habit, she became at once her former restless, impulsive, passionate, and unreasoning self. Becoming again an opium user, she was immediately transformed into a shrewd, cautious manager of her affairs, reason and reflection dominating instead of impulse and passion; and these phenomena reappearing again in subsequent years as she gave up or resumed the use of the drug. The question would naturally arise to the psychologist, if the morphine state of her personality was not the superior one both from a moral point of view and that of functional equilibrium; and to the therapist the history of this case might furnish a valuable suggestion in the study of this and other agents in the relief of diseased or perverted conditions along the line of the dual action of drugs.

**Applied Chemistry.**<sup>1</sup>—At a recent date two French chemists, M. Desgrez and M. Balthazard, claimed to have made a chemical discovery which could be utilized at a very small cost, and which would do away entirely in submarine work with costly apparatus now in use, and enable them to renew air indefinitely. The experiment, which was entirely successful, consisted in lining a helmet, to be used by divers, made of aluminium, with the binoxide of sodium. The oxygen set free by this chemical would be sufficient to enable the wearer to breathe freely and work for hours without any addition of atmospheric air. An expert physiological chemist in New York city made some interesting and very satisfactory experiments to determine from a scientific standpoint the value of the binoxide of sodium when properly managed in keeping the air so saturated with oxygen and absorbing carbonic acid that life can be supported in a confined space without the admission of atmospheric air until the chemical has given out all its oxygen. In each of two large bell jars was placed a guinea-pig. In one of the jars was placed some of the binoxide of sodium with a simple apparatus for its decomposition; the other contained nothing but the guinea-pig. The jars were sealed and the result closely watched. The pig which had the advantage of the chemical breathed naturally, was perfectly undisturbed, and when the jar was lifted ran away, as well and as lively as ever. The other soon showed

<sup>1</sup>Edtl. in *Med. Fortnightly*, Oct. 25, 1900.

<sup>2</sup>*Med. Times*, Oct., 1900.

<sup>1</sup>*Med. Times*, Oct., 1900.



signs of asphyxiation, the breathing was labored and rapid; and the pig would soon have become convulsed if the glass had not been lifted. The pig was then so exhausted as to be unable to move, and it was several minutes before it fully recovered. The binoxide of sodium is very easily manufactured by simply heating sodium in oxygen until it is saturated and ceases to gain in weight. The addition of moisture decomposes the chemical and sets free the oxygen in the same way that acetylene gas is set free from calcium carbide. Reckoning 1 pound of oxygen to 50 cubic feet of air, and the consumption of each individual about 1 oz. of oxygen in twenty-four hours, 5 pounds of binoxide of sodium, which is  $23\frac{1}{2}$  parts of oxygen, would yield sufficient oxygen to arterialize the blood for twenty-four hours. It will be readily seen how this simple process of applied chemistry can be utilized at a very small expense in work which has heretofore been attained with great labor and expense, liable at all times to accident, and sometimes attended with positive danger.

**The Age of Crankism.**<sup>1</sup>—Truly this is the age of crankism. Nothing is too preposterous for some people to believe it. The evolution of mind, like the evolution of other faculties, renders it peculiarly susceptible to diseases and errors. As a result we have isms of all kinds. Some of them are too absurd to entertain for a moment, were it not that they are propagated by a narrow, intense fanaticism, which is responsible for serious consequences. Now comes raw foodism, with its tape worms, trichina, etc., to try the patience of the long-suffering.

A society has actually been organized in Chicago, consisting of twenty-three men and women, pledged to eat all their food raw.

Here is a specimen of their reasoning:

"Mr. Taylor, in addressing the meeting, said: No oak ever grew from a burned acorn; parched corn will never sprout when planted; roasted chestnuts never produced a chestnut tree, nor were peanuts ever grown from planting roasted peanuts. All that is life-giving in anything is destroyed by fire."

We did not know before that food was planted in the stomach to germinate. We had an idea that it was the prayerful intention of physicians to prevent this, if possible.

The following energetic resolution promises a great deal more than it can successfully tackle:

"Resolved, That it is our firm conviction that man could live much longer, in proportion to the number of years required for his development, by eating raw food; ill-health would be the exception rather than the rule, and pestilence and contagious diseases would be wiped from the land. We believe children reared on uncooked foods will become giants physically and intellectually."

In bygone days, when men were too savage to cook their food, they were anything but a superior race. Pestilence and contagion were the rule rather than the exception. Whole communities were wiped out. Delusions and hallucinations seized upon great bodies of men. The process of digestion was so slow, difficult and imperfect, men were stupid, sluggish, almost comatose, for hours afterwards. It was customary to defer eating when anything was on hand requiring a clear and ready brain. Prolonged periods of fasting were necessary for purification. Blood and skin diseases, especially small-pox, were extremely common and very severe. Immense paunches were the rule, and apoplexy an everyday affair.

Yet it is gravely proposed to return to these barbarous dietetic practices. As a result, deaths from ptomaine poisoning are enormously increased.

As soon as an animal dies, ordinary tissue metabolism is reversed. Instead of assimilation and repair, we have putrefaction of fluids and tissue break-down. The first step consists in the production of various ptomaines just as poisonous as prussic acid, strychnine, atropine, daturine, and other alkaloids. Injected into dogs, they produce the phenomena of poisoning and death.

Cold retards and heat checks these changes. An animal killed, drained of its blood, put on ice or hung up in a cold place until the animal heat is out, and then cooked thoroughly done, is tender, nutritious and easily digested.

But raw meat, rare beef, poultry, pork, etc., contain numerous sources of disease in an active state. A tuberculous taint, zymotic poisons, parasitic germs, as tape worm, trichina, etc., to say nothing of various ptomaines, infest such meat, and infect the unfortunate victim of this last and worst food fad.

It was decided at the Chicago meeting to try and bring about the organization of similar raw food societies throughout the country. Physicians, as guardians of the public health, must take a decided stand on this question. It would be infamous, with our superior knowledge of the deadly dangers involved in this raw food folly, if we did not exert ourselves to teach the truth in the matter.

A nation can not prosper except its men be sound and healthy. No man can be either healthy or sane who lives on raw food. The chances are that he will not "be" at all very long.

**DEATH FROM CIRCUMCISION.**—A fifteen-day-old infant died from hemorrhage following circumcision by a rabbi in Philadelphia last week. A physician was called after unsuccessful efforts to check the hemorrhage had been made for two hours. The child died five hours after the physician was called to see the case.—*Med. News*,

<sup>1</sup> Edtl. in *Med. Brief*, Oct., p. 1677.

# The Prescription

We wish to have our readers use this department with the utmost freedom. Any question about the prescription or about any substance used in prescriptions comes within its range. We shall do our best to find correct answers for all, and if we fail for lack of information at hand, some one of our readers may be able to give the right reply. On questions of therapeutics or practice we shall not attempt to give any opinions of our own, but find for the questioner what the best available authorities on such subjects have to say upon them. Let every reader resolve his doubts about compatibilities, doses, latest remedies, best methods of administration, dangers of remedies, etc. Send in favorite prescriptions and let others be benefited by what you have discovered. We shall give full credit for all such information. As some persons do not care to have their names appear as the authors of queries, we will refrain from giving names in this connection when requested to do so. Sometimes it is an advantage to have the writer's name published, and in such cases we hope that overdifidence will not interfere with the right.

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**Dr. J. B. C.**, of Illinois, asks whether there is any difference between FORMIN and FORMOL, and what the difference is? Also doses and indications.

These two products are entirely distinct and separate from one another. **Formin**

is chemically hexamethylene-tetramine, having the chemical formula  $(\text{CH}_2)_6\text{N}_4$ . It is in the form of minute white crystals, and is readily soluble in water. It is absolutely the best urinary antiseptic we possess, and in cases of purulent or gonorrheal cystitis, cystopyelitis, pyonephrosis, prostatic abscess, and the uric-acid diathesis there is no drug to take its place. Its virtues are due to the fact that it becomes decomposed in the genito-urinary tract and formaldehyde in *statu nascendi* is set free. The dose is  $7\frac{1}{2}$  to 15 grn. in a glass of water or "soda" water, two or three times a day. This chemical is put on the market by different firms under different names, such as urotropin, aminoform, cystamine, etc. They all represent the identical substance—hexamethylene-tetramine.

FORMOL, on the other hand, is simply a trade name for the aqueous solution of formaldehyde,  $\text{CH}_2\text{O}$ . Formaldehyde is used as a disinfectant and antiseptic; also as a food preservative, as a preservative for anatomical and botanical specimens, and is recommended in tuberculosis by inhalation.

**Dr. C. D. Gibson Mack**, of Boston, writes that in treating *acute gonorrhea* our endeavor should be to stop the discharge and kill the gonococci as quickly as possible. He does not believe in letting it "run its course," stating that by proper treatment the disease can be aborted in a few days. His plan of treatment is as follows: An injection is ordered of a  $\frac{1}{4}$ -per-cent. (1:400) solution of LARGIN: the patient is instructed to retain the injection for five to ten minutes, morning and noon, and fifteen to twenty minutes in the evening. Besides this, he takes a UROTOPIN tablet three times a day (dissolved in a glassful of water), and also some antigonorrheal tablets consisting

of cubebs, copaiba, oil of santol, iron sulphate, and Venice turpentine. He cites a severe case of acute gonorrhea which, under this treatment, was completely cured on the eighth day.

**Dr. J. W. S.**, of San Francisco, writes: "Kindly give me the formula for PAGENSTECHE'S OINTMENT, which I remember having read as recommended in *conjunctivitis* and other eye troubles. I cannot find any information about it in all the journals to which I have access."

Pagenstecher's ointment is simply an ointment of yellow mercuric oxide—1 grn. to 1 dr. of vaselin. It would be a good thing if writers refrained from the ridiculous and annoying habit of referring to a simple combination by the name of the doctor who first happened to recommend it.

**Dr. F. H. B.**, of Illinois, writes: "On page 419 of the October ARCHIVES there is a prescription for *pharyngitis*, one of the ingredients of which is GOMENOL. I cannot find any information regarding that product."

Gomenol is the ethereal oil of *melaleuca viridifloris*, a plant of the family *Myrtaceæ*, growing in New Caledonia, near Gomen. This oil is said to contain 66 per cent. of cineol, a terpene, some terpineol, and traces of acetic, butyric, and valerianic acids.

**Dr. A. B. N.**, of Connecticut, writes: "Kindly give me exact formula for preparing GRAY OIL. I know it is a preparation of mercury used hypodermatically, but do not know its method of preparation, nor its strength."

The method of preparing gray oil is as follows: Take 2 dr. of wool-fat (lanum), add enough chloroform to make a kind of emulsion, allow the greater part of the chloroform to evaporate, but while the mixture is still of a fluid consistency, add

4 dr. of metallic mercury and triturate thoroughly. This ointment, which is in Germany referred to as strong gray ointment, contains, as is seen, 66 $\frac{2}{3}$  per cent. of metallic mercury; 2 parts of this mixed with 1 part of olive oil gives us a 50-per-cent. preparation, and of this, 1 to 3 min. are injected. On mixing 1 part of the "strong gray ointment" with 1 part of olive oil a 33 $\frac{1}{3}$ -per-cent. preparation is obtained, of which 1 to 5 min. are injected. By many of the German syphilologists gray oil is considered the most effective preparation of mercury for specific treatment.

**Dr. A. S. W.**, of Texas, writes: "Please write what is, in your opinion, the best remedy for *excessive perspiration of the feet*, the sweat having a very strong, disagreeable odor. Burnt alum has proved ineffective."

If alum has proved ineffective, a combination of burnt alum, starch, and salicylic acid might prove useful. Still better is a solution of formaldehyde, a few drops to an ounce or two of water, the feet to be washed night and morning. Very highly spoken of and recommended as an infallible cure is tannoform, which is a combination of gallo-tannic acid and formaldehyde. This acts as an astringent, disinfectant, and deodorizer. It is best used dry, by rubbing on the feet, or shaking a little into the stockings.

**Dr. J. B.**, of New York, asks us to furnish him the formula of LIQUOR CARBONIS DETERGENS, which he has come across several times in the medical journals, as an application for *eczema*. He has inquired for it in two or three drug-stores, but was informed that they did not have it on hand and did not know what it was.

Liquor carbonis detergens, also known as coal-tar saponin, is a favorite prescription with English physicians for various dermic troubles. It is made by mixing 4 oz. of coal-tar with 8 or 9 oz. of tincture of soap bark, allowing to stand for a few days in a warm place, shaking occasionally and filtering. It is but seldom applied pure, but is generally mixed with 15 to 50 parts of water (1 dr. in 2 oz. to 1 dr. in 6 oz. of water). In the last edition of the British Pharmacopœia there is official a preparation under the name of liquor picis carbonis—solution of coal-tar, which is practically identical with liquor carbonis detergens. The formula can also be found in the last (18th) edition of the United States Dispensatory.

## Seasonable Prescriptions

### Acute Bronchitis:

Terebene.....	2	dr.
Morphine Sulphate.....	$\frac{1}{2}$	grn.
Syrup Tolu.....	1	oz.
Mucilage Acacia.....	2	oz.
Teaspoonful every three hours.		

—DA COSTA.

Ammonium Chloride.....	80	grn.
Tartar Emetic.....	1	grn.
Potassium Iodide.....	16	grn.
Simple Elixir.....	2	oz.
Distilled Water.....	to make	8 oz.

Tablespoonful every three or four hours.

—New Eng. Med. Monthly.

### Chronic Bronchitis:

Eucalyptol.....	1	dr.
Camphor. Tinct. Opium.....	4	dr.
Syrup Tolu.....	1	oz.
Simple Syrup.....	to make	4 oz.

Teaspoonful every four hours.

—LOVE.

### Acute Pharyngitis (ACUTE SORE THROAT):

Decoction Marshmallow Leaves	
(10%).....	6 oz.
Tinct. Opium.....	75 min.

Use as a gargle, four or five times a day. Also apply wet compresses to the neck, and give small pieces of ice to hold in the mouth.

—Jour. Amer. Med. Assoc.

### Chronic Pharyngitis and Tonsillitis:

Zinc Sulphate.....	20	grn.
Listerine.....	} of each,	2 oz.
Water.....		

Use as a spray. —Med. Brief.

### Follicular Pharyngitis:

Iodine.....	} of each,	3 grn.
Potassium Iodide.....		
Trichloroacetic Acid.....		7 min.
Glycerin.....	} of each,	4 dr.
Water.....		

Apply locally and vary the strength to suit the case. —Tri-State. Med. Jour.

### Early Cough and Fever in Pneumonia.

Potassium Citrate.....	6	dr.
Spirit Nitrous Ether.....	} of each,	4 dr.
Camphorated Tinct. Opium.....		
Solut. Potassium Citrate, to make	6	oz.

Dessertspoonful every three hours.

—HUGHES, St. Louis Clinique.

### Acute and Chronic Coughs:

Linseed Oil.....	15	oz.
Oil Wintergreen.....	} of each,	2 dr.
Oil Cinnamon.....		
Dil. Hydrocyanic Acid.....	2 $\frac{1}{2}$	dr.
Glycerin.....	5	dr.
Simple Syrup.....	10	oz.
Water.....	24	oz.
Irish Moss.....	$\frac{1}{2}$	oz.

Make an emulsion; 2 to 4 teaspoonfuls three times a day.

—WM. H. THOMPSON.

[We have tried the above in a great number of instances, and found it a most excellent combination. When the cough is very irritating and painful,  $\frac{1}{8}$  grn. codeine or  $\frac{1}{8}$  grn. dionin may be added to each dose with great advantage.—ED.]



**Tonsillitis:**

Deod. Powd. Opium..... 2 grn.  
 Tinct. Veratrum Viride..... 8 min.  
 Calomel..... 2 grn.  
 Oil Anise..... 1 min.  
 Milk Sugar..... (sufficient)  
 Make into 20 tablets. One every hour for adults.  
 —NEWCOMB, *Med. Record*.

**Acute Tonsillitis:**

Tinct. Aconite..... 8 min.  
 Solut. Ammonium Citrate..... 2 dr.  
 Syrup Orange..... 1½ dr.  
 Distilled Water..... to make 2 oz.  
 Two teaspoonfuls every three hours for a child five years old.  
 —ASHBY, *Med. News*.

Sodium Salicylate.... } of each, 4 dr.  
 Syrup Acacia..... }  
 Cinnamon Water..... 4 oz.  
 A dessertspoonful every two or three hours.  
 —Columbus *Med. Jour*.

**Acute Follicular Tonsillitis:**

Sodium Borate..... } of each, 1½ dr.  
 Potassium Bromide.. }  
 Carbolic Acid..... 20 min.  
 Glycerin..... 2 dr.  
 Infusion Althea..... to make 4 oz.  
 Use as a gargle four or five times a day.  
 —*Jour. de Méd. de Paris*.  
 Guaiacol..... } of each, 2 dr.  
 Exp. Oil Almond.... }  
 Apply on the inflamed tonsil with a throat brush. Give internally.

Potassium bromide..... 80 grn.  
 Sodium Salicylate.... } of each, 1 dr.  
 Tinct. Deod. Opium.. }  
 Cascara Cordial..... to make 1 oz.  
 Teaspoonful every four hours in water.  
 —INGALS, *Chic. Clin. Rev*.

**Asthma:**

Aspidospermine..... 15 grn.  
 Alcohol..... } of each, 5 dr.  
 Dist. Water..... }  
 Glycerin..... to make 2 oz.  
 Use with vaporizer.

—*Med. Council*.

Powd. Potassium Nitrate... 4 to 6 dr.  
 Powd. Stramonium Leaves... 75 grn.  
 Powd. Lobelia..... 90 grn.  
 Powd. Belladonna Leaves... 45 grn.  
 Powd. Grindelia..... 90 grn.  
 Powd. Hydrastis..... 15 grn.  
 Mix carefully and well. Burn in heaping teaspoonful in small closed room or under improvised tent, and inhale for a period of 10 to 20 minutes, or until relieved.  
 —J. B. JACKSON.

**Hay-fever:**

Iodine..... 10 grn.  
 Carbolic Acid..... 15 grn.  
 Quinine Hydrobromate..... 30 grn.  
 Alcohol..... 5 dr.  
 Glycerin..... to make 2 oz.  
 Use with vaporizer.  
 —*Med Council*.

**Quinsy:**

Tinct. Veratrum Viride..... 30 min.  
 Morphine Sulphate..... 1 grn.  
 Water..... 2 oz.  
 Teaspoonful, repeated in one hour, then every two or three hours.  
 —N. Eng. *Med. Monthly*.

**Influenza:**

Quinine Salicylate..... 3 grn.  
 Phenacetin..... 2¼ grn.  
 Camphor..... ½ grn.  
 Six in twenty-four hours.  
 —BACELLI, *Gaz. degli ospedali e delle cliniche*.

**Cough of Influenza:**

Sodium Benzoate..... 1 dr.  
 Bromoform..... 10 min.  
 Syrup Tolu..... 1 oz.  
 Syrup Lactucarium..... 3 oz.  
 Take, in twenty-four hours, in divided doses.  
 —*Med. News*.

**Influenza with Nausea:**

Morphine Sulphate..... ½ grn.  
 Dil. Hydrocyanic Acid..... 8 min.  
 Spirit Chloroform..... 1½ dr.  
 Spearmint Water..... to make 1½ oz.  
 Teaspoonful every three or four hours. Especially useful where there is nausea and troublesome cough, but when the bronchitis is not severe.  
 —*Med. Progress*.

**Influenza in Children:**

Sodium Benzoate..... }  
 Salol..... } of each, 1½ grn.  
 Acetanilid..... }  
 Caffeine..... ¼ grn.  
 For one powder. One powder every three hours to a child six years old. If pain is severe and child is kept awake, add ½ grn. codeine sulphate to each powder.

Antipyrine..... } of each, ½ dr.  
 Sodium Benzoate.... }  
 Anisated Solut. Am- }  
 monia..... } of each, 2 dr.  
 Comp. Syrup Squill. }  
 Syrup Althea..... ½ oz.  
 Anise Water..... to make 2 oz.  
 Teaspoonful every three hours to a child six years old.  
 —H. B. SHEFFIELD, *N. Y. Med. Jour*.

**Coryza (RHINITIS):**

Quinine Sulphate..... 2½ grn.  
 Fl. Ext. Belladonna..... 2½ min.  
 Sodium Salicylate..... 30 grn.  
 Camphor..... 2½ grn.  
 Make ten tablets; one tablet every hour or two.

—*Jour. Med. Chirurg. College*.

Alum..... 3 grn.  
 Morphine Sulphate..... 2 grn.  
 Cocaine Hydrochlorate..... 1 grn.  
 Camphor..... } of each, 2 dr.  
 Bismuth Subnitrate.. }  
 Mix thoroughly.—To be used as a snuff every two hours, a small quantity in each nostril.  
 —*Practitioner*.

**Acute Nasal Catarrh:**

Carbolic Acid..... 8 min.  
 Ichthyol..... 1 dr.  
 Dil. Alcohol..... 2½ dr.  
 Distilled Water..... to make 3 oz.  
 Use as a spray, by means of atomizer, two or three times a day.  
 —*Jour. Amer. Med. Assoc*.

# COLLECTIVE INVESTIGATION

*Under this head are published interesting experiences of physiologists, clinicians, and practitioners with remedies of recent introduction*

## STYPTICIN

(COTARNINE HYDROCHLORATE, MERCK)

### Introductory

**T**HIS new, uterine hemostatic, styptic, and sedative, and dental and nasal styptic, exists as a bitter, yellow powder, soluble in water or alcohol. It is used in every form of uterine hemorrhage not due to fungus endometritis, retained fragments of placenta, or neoplasms. Its chief virtue is as a hemostatic in the painful, prolonged or excessive menstruation of young women, and in the menorrhagias of the climacteric period. It has proven of decided value in pulmonary hemoptysis and its topical application, as powder, or on cotton or gauze, in dental and nasal hemorrhages has been spoken of very highly. As a prophylactic against dysmenorrhea or menorrhagia of the young it is best given in doses of  $\frac{3}{4}$  grn. four or five times a day, in tablets or elixir. In other conditions the dose varies from  $\frac{3}{4}$  to 4 grn. four or five times a day, by the mouth or hypodermically, according to urgency of case, in sugar-coated or hypodermic tablets.

### History

In 1893 Dr. Martin Freund, then professor of organic chemistry and pharmacology in the University of Berlin, suggested the advisability of trying cotarnine hydrochlorate as a hemostatic and styptic. His reasons for this he thus states: "The costliness of hydrastinine hydrochlorate, which was introduced into therapeutic use on my suggestion, made desirable the introduction of a drug of similar effect but less expense. The close chemical relationship of cotarnine to hydrastinine readily suggested the former as a possible succedaneum for the latter." After adequate physiological and clinical evidence of its real value had been obtained it was introduced to the profession under the brief name of stypticin.

### Internally in Uterine Hemorrhages

Dr. H. J. Boldt,<sup>1</sup> while professor of gynecology in the New York Post-Graduate Medical School, tried stypticin in eighty-seven cases of uterine hemorrhage, and re-

ported his results at the ninety-third annual meeting of the New York State Medical Society, at Albany. Among other interesting things, he said:

"In reviewing the action of stypticin one must come to the conclusion that in certain forms of uterine hemorrhage it is, almost a specific. I have found no unpleasant symptoms even in cases in which  $4\frac{1}{2}$ -grn. (0.3 Gm.) doses were administered.

"I close this recital of my personal observations by requesting those who have tried other remedies and found them wanting, to add also stypticin to their therapeutic agents; feeling convinced that in it they will find a most useful addition, and that the curette and local treatment will be less frequently called for.

"For some time more attention has been devoted to operative interference for the control of bleeding from the uterus, or to some form of local treatment—the latter not infrequently with deleterious results to the patient. This was undoubtedly due to the unsatisfactory results which had been obtained from the internal remedies used in such cases. These remedies were few in number. With the introduction of stypticin, however, we have a very valuable new remedy—a hemostatic 'par excellence' if the proper indication has been selected for the employment of the drug. In the above I have endeavored to show in which classes of cases such results may be expected."

Dr. J. B. McGee,<sup>2</sup> professor of materia medica and therapeutics, Cleveland College of Physicians and Surgeons, states:

"A limited use of stypticin has convinced me that its claims as an efficient uterine hemostatic are just. I have occasionally found it to succeed when the usual agents of this class have failed to control the existing conditions, and my personal experience with it has been quite satisfactory. Its action is usually prompt and is said to be due not to uterine contraction, but rather to a vaso-motor influence. I have never noticed the narcotic or sedative action ascribed to it by some, and while larger doses are recommended,  $\frac{1}{2}$  grn. orally every few hours will generally exert a beneficial action, and it is evidently worthy of being recognized as among the reliable remedies of its class."

Dr. Sigmund Gottschalk,<sup>3</sup> Chief Physician of Women's Clinic, Berlin:

"Our results from stypticin in hemorrhages of varied origin have on the whole been highly satisfactory. It is adapted for long-continued use. Over other hemostatics, as ergot and hydrastis, it has the great advantage of sedative action, visible in anodyne and soporific effects that are very

<sup>2</sup> *Bull. Cleveland Gen. Hospital*, April, 1900.

<sup>3</sup> *Therap. Monatsh.*, 1895, No. 12.

<sup>1</sup> *Med. News*, April 8, 1899.

desirable particularly in *dysmenorrhœic* conditions. The hemostatic results secured in cases of pure subinvolution were in every case permanent. Permanence of effect was the rule also in the menorrhagias without demonstrable lesion, so far as our clinical material enabled us to demonstrate this."

Alluding to the above-mentioned publication, Dr. Gottschalk<sup>4</sup> further reports, after four years' lapse:

"The favorable presage established for this remedy on an experience then extending over two years, has been confirmed; judged from the numerous communications thereon from all parts of the world, stypticin has gained permanent place in the gynecologic armamentarium. My own observations have continued equally satisfactory as first reported publicly by myself, and subsequently by my former assistant, Dr. Nassauer. Hence I gladly yield to the editor's request for a brief summary of my now *six years'* impressions as to the therapeutic value of this substance.

"The superiority of stypticin over ergot, and hydrastis, and their preparations, consists not only in its sedative and anodyne side-effect, but also in its entire freedom from unpleasant action, even in large doses. Its subcutaneous administration causes neither pain nor infiltrations when the due aseptic caution is exercised. This remedy does not occasion uterine contraction and labor-pains, because its action is primarily a central one on the nervous system, thereby first lowering the respiration-rate and secondarily the blood pressure. It is therefore not a universal panacea in every possible form of uterine hemorrhage; its action follows precise indications, that are based on its physiologic properties as above-stated."

Dr. H. Gärtig,<sup>5</sup> of the Midwifery School of the Province of Silesia, Breslau, in a report of forty-five cases, says:

"As a result of our researches, we believe ourselves justified in lauding stypticin as a good remedy chiefly in uncomplicated menorrhagia, climacteric hemorrhage, metrorrhagia from retroflexion or subinvolution, both post-partum and post-abortion. We also found it useful in the uterine hemorrhages caused by chronic inflammations in the adnexa. In gravidity, with threatening abortion, it was found not to cause any contractive movement in the uterus. The medication is very well borne even in large doses, and occasions no undesirable side-effects on long continuation."

Dr. Max Nassauer,<sup>6</sup> of Gottschalk's Women's Clinic, Berlin, when reporting ninety-seven cases, says:

"From an unbiased study of the adduced facts, I should concur in the opinion first expressed by Gottschalk, that stypticin is destined to take permanent rank in gynecologic practice among the substances efficacious in uterine hemorrhage."

A report by Dr. Nassauer,<sup>7</sup> after 120 cases, states that:

"In menorrhagias and other hemorrhages from the vagina, that do not originate from diseased conditions of the uterine mucosa, stypticin in

small doses is generally preferable, for certainty and promptness of effect, to ergot and hydrastis; also that no by-effects were observed; even as much as 0.4 Gm. (6 grn.)—which is four to eight times the usual doses—having caused no symptoms of intoxication. Nor has any local trouble ever resulted on injection."

A still later report by the same author,<sup>8</sup> which is based on 200 cases, contains the following concluding remarks:

"The unreliability of ergot, its frequent untoward side-effects, along with the limited applicability of hydrastis, are well known to you all. Whenever you have to deal with excessive duration or copiousness of the menstrual flow, with uterine bleedings of reflex origin, or with purely climacteric ones, you will derive a great deal of satisfaction from this simple stypticin medication—and so will your patients. Furthermore, you will secure happy although transitory results in the bleedings from carcinoma, from myoma, and from endometritis."

Dr. Bakofen,<sup>9</sup> of Czempin's Polyclinic, Berlin, after a trial in 43 cases, reports:

"Stypticin developed truly surprising efficacy in menorrhagias caused by inflammatory processes in the pelvic connective tissue or in the adnexa, or by displacements of the uterus. Similarly good results were had in consecutive metrorrhagias; also when the hydrastis alkaloids had failed to act."

The author also reports successes with atypic bleeding consequent upon gonorrhœic infection of the uterine mucosa, in virginal and menstrual excessive bleeding, and in subacute aggravations of chronic hemorrhagic endometritis. Untoward by-effects never were found.

Dr. Joseph von Braitenberg,<sup>10</sup> of the Gynecologic Clinic at Innsbruck University, in a paper tabulating 24 cases says:

"Summarizing the results of our experiments, we must declare that stypticin hardly ever entirely failed us; yea, that in the majority of cases we had to record most remarkable successes. Hemorrhages whose cause could be shown to consist in uterine displacements, perimetritis, parametritis, or any inflammatory process in the adnexa, almost always received unexpectedly complete relief. Profuse and protracted menses were invariably reduced—an effect of especial value in dysmenorrhea. Also in hemorrhages where no anatomic lesion could be traced, we used the remedy successfully. In a case of retroflexion with threatening abortion, the flow persisting after reposition was stopped without the induction of labor pains, and abortion did not occur."

Drs. T. Ronse and Paul Walton,<sup>11</sup> report upon their exhaustive series of physiological experiments, in which they compare stypticin with other hemostatic agents, as also upon numerous clinical trials. Their final conclusions are:

"Whenever lasting and sustained action is de-

<sup>4</sup>*Therap. der Gegenw.*, Aug., 1899.

<sup>5</sup>*Therap. Monatsh.*, 1896, No. 2.

<sup>6</sup>*Therap. Wöch.*, 1897, Nos. 32 and 33.

<sup>7</sup>*Pharm. Post*, XXX, p. 535.

<sup>8</sup>*Monats. f. Geburtsh. u. Gynäk.*, 1899, No. 5.

<sup>9</sup>*Münch. med. Woch.*, No. 14, 1898.

<sup>10</sup>*Wien. med. Presse*, 1898, No. 35.

<sup>11</sup>*Belgique Médicale*, 1898, No. 20.



sirable—such as in uterine affections accompanied by hemorrhage dependent on circulatory disturbance, and also whenever the enduring toning-up of the heart is of moment, as after great losses of blood from operations or any other causes—stypticin appears to be the proper agent to employ.”

Dr. L. M. Bossi,<sup>12</sup> professor of gynecology in the University of Genoa, read a paper before the French Gynecological Congress at Marseilles, in which he draws the following conclusions:

“Stypticin was found less toxic, in animal experiment, than hydrastis; clinically, it produced no ill-effects. It is *not ecboic*; and in hemorrhage with threatened abortion it even yielded, besides its hemostatic effect, a marked sedative action upon the uterus; wherefore it can also be safely entrusted to midwives to be used in the proper class of emergency, post-partum.”

Dr. Martin Freund,<sup>13</sup> former professor of organic chemistry and pharmacology of the University of Berlin, reviewing total literature on stypticin to that date, says:

“Several years’ observation by various clinicians, on several hundreds of cases, enable us to draw the following conclusions as to indications:

“Stypticin acts as a specific in those menorrhagias which are caused by inflammatory processes in the pelvic connective tissues, or in the adnexa, or by displacements of the uterus accompanied by inflammatory developments in the surrounding region. The same certainty of action may be expected also in consecutive metrorrhagias appearing in connection with the disturbances above mentioned. Likewise in uterine hemorrhage resulting from stump exudations after operations on the adnexa. Prompt results were had in bleeding from uterine subinvolution, both post-partum and post-abortion, provided that no decidua or debris had remained. The same was found in persistent bleeding after curettage in endometritis. Most excellent results were obtained in virginal menorrhagias without demonstrable pathologic or anatomic genesis; also in climacteric cases. Favorable action was noticed in bleeding from myomata; also in strong atypic bleeding in the presence of gonorrheic infection of the endometrium. As the preparation does not cause uterine contraction, it may be safely employed in gravid cases.”

In the above-cited paper by Prof. Freund, the author refers to the previously quoted reports by Gottschalk, Gärtig, Nassauer, Bakofen, von Braitenberg, Ronsse and Walton, and Bossi. He also reproduces, briefly, the opinions of several other investigators of stypticin, as follows:

“Dr. Nedorodow (*Medizinskoe Obosrenie*, 1898, No. 7) judges stypticin as favorably as Dr. von Braitenberg does. Having employed it in twenty-four cases of various gynecologic disorders accompanied by violent and persistent hemorrhage, also in two of hemoptysis, he declares it proved a very reliable hemostatic in all the different forms of hemorrhage he had to deal with. Also, that its sedative and almost hypnotic action enabled him

to dispense with narcotics in those cases. Finally, that in view of its low price, prompt action, and relative innocuousness, it deserves a place in the front rank among hemostatics.

“Drs. M. Pazzi, visiting and consulting obstetrician to the hospitals of the city of Bologna, and L. Paoletti (two separate papers: *Corriere Sanitario*, '98, pp. 497, 498), alike accentuate the desirable behavior of stypticin. In one particular case of highly exacerbated menorrhagia, completely resistant to the usual agents, as extr. hydrastis, ergot, ergotin, etc., stypticin did the attempted work.

“The same kind of experience is reported also by Dr. Ernesto Zaramella, first assistant surgeon at the Gynecologic Clinic of Pavia University (*Il Pratico*, 1898, p. 756), who used stypticin successfully in several cases wholly refractory to the usual hemostatics.

“Of late, Sanitary Councillor Dr. Heyden, in Plane in Thuringia, is using stypticin in his Women's Sanitarium. He writes me as follows: ‘Altogether, I have treated 17 cases with stypticin, 10 of which were of continued bleeding after curettage in endometritis.’ The action in every case was prompt and thorough.”

Dr. H. Abegg,<sup>14</sup> of Dantsic, Prussia, writes as follows:

“Stypticin, in my hands, has proved a valuable remedy in the following four classes of cases: (1) hypermenorrhea; (2) hemorrhage of subinvolution after abortion; (3) puerperal hemorrhage; (4) climacteric hemorrhage. In the last-named group, the hemostatic efficacy of this medication appeared the most striking. In all these four groups, a decided sedative action was noticed; quiet sleep being induced; while untoward results never supervened—an experience differing from that obtained with ergot, which at times nauseates, even up to vomiting.

“The author further emphatically states his opinion that many other instances in his observation in which surgical means were applied to put a stop to excessive and continued hemorrhage, would have been sufficiently amenable to internal treatment.”

Dr. H. Walther,<sup>15</sup> professor of obstetrics and gynecology, of Giessen University, in a paper read before the County Medical Society at Nidda:

“Having used stypticin for several months in over 100 cases, about one-third of which remained under my own observation in the hospital, I can render positive testimony to both its sedative and its hemostatic action. I hold its chief domain to be in gynecologic cases devoid of any grave anatomic change in the corpus and in the cervix uteri, as a substratum for the existing hemorrhage. The principal groups of indications in which I successfully employed it may be classified as follows: (1) hypermenorrhea, especially in young girls and other nulliparæ; (2) preclimacteric hemorrhage not dependent on other changes, especially not on malignant ones; (3) irregular, more or less bloody secretions outside of the menses—most especially such consequent on operative measures, as, for instance, curettage; (4) hemorrhage caused by disease of the adnexa, of the pelvic connective tissue (parametritis); or accompanying fixed displacements. In the latter group of indications, the

<sup>12</sup>*La Riforma Medica*, 1898, No. 35.

<sup>13</sup>*Monats. f. Geburtsh. u. Gynäk.*, 1899, No. 31.

<sup>14</sup>*Centralbl. f. Gynäk.*, 1899, No. 44.

<sup>15</sup>*Zeitschr. f. prakt. Aerzte*, 1900, Nos. 7 and 8.

reflectory effects from stypticin appeared most particularly valuable. It is obvious herefrom how important an agent stypticin is in office practice, and in cases where an exploration—not to mention operation—will not readily be taken to; such as, for instance, the hemorrhagic irregularities of young girls at the threshold of pubescence. In this class of cases I have given this remedy for protracted periods without the least harm, and have thereby in many instances completely succeeded in avoiding the need of local treatment.

"Most of my cases of hemorrhage from endometritis and chronic metritis in older persons yielded to stypticin alone; in about 25 per cent. of them curettage had to be employed.

"I have furthermore used stypticin in two cases (all I had in this period of observation) of hemorrhagic endometritis in *gravid* women with good results.

"I closely watched over nine cases of hemorrhage complicated with myomata uteri, which were treated only with stypticin, and in each case, contrary to the published opinions of some authors, obtained complete cessation of the bleeding; yet it is to be remarked that this direct and complete success was obtained only with simple intramural myomata. In submucous, especially cervical, fibroids of notable size, I could nevertheless considerably *palliate* the hemorrhage by this medication, while awaiting the day set for operation. Albeit, it appears evident that at the present day an altogether disproportionate number of gynecological cases receives operative treatment."

### Internally in Pulmonary Hemorrhage

Dr. Martin Freund,<sup>16</sup> after reviewing the successful results with stypticin in gynecological cases, says:

"The efficacy of stypticin in various forms of *uterine* hemorrhage is established. Whether this agent, in certain instances of *pulmonary* hemorrhage, is indeed superior to others, has still to be determined by corroborative tests, which I would herewith suggest." [Here the author obviously refers principally to the report of Lavialle and Ruysen, cited below.] "Having been further personally informed of excellent results attained with it in a case of *rectal* hemorrhage, I would propose that suitable trial should be given it in such cases, as well as in those also of *vesical* and *nasal* bleedings."

He then briefly quotes the results obtained by the two French observers above-named as follows:

"Drs. J. Lavialle and Ch. Ruysen, in Lille (France), (on suggestion of Prof. De Combe-male, of the Medical Faculty of Lille University) investigated the action of stypticin in *hemoptysis*, especially with tuberculous subjects (*L'Echo m'd. du Nord*, 1898, p. 225). Whenever the tuberculous condition had not passed beyond the second stage very happy results were had. Injections of up to 1 Cc. (16 min.) of 10-per-cent. stypticin solution were made three to four times, all on one day. Even the most copious hemorrhages ceased after four injections; also by mouth, eight or more of the 5-Cg. ( $\frac{3}{4}$ -grn.) tablets, in the same period, yielded satisfying action. When congestive conditions prevailed, the administration of the remedy was combined with laxative and derivative treatment."

### Internally in Menstrual Neuroses

In a paper on "Functional Neuroses and Their Relation to the Diseases Peculiar to Women," read before the New York Academy of Medicine, Nov. 25, 1898, Dr. H. J. Boldt<sup>17</sup> said:

"Among particular forms of reflex neuroses, those in connection with menstruation are quite prominent, as, for example, acne rosacea, eczema, urticaria, etc. The following instance is unusual: "A girl, aged fourteen years, began to menstruate between the eleventh and twelfth year; the flow was profuse, and of eight days' duration. A few months after the appearance of the menstrual epoch the child developed an eczema, which extended over the hips, buttocks and posterior surface of the thighs, gradually diminishing to nearly complete disappearance for two weeks after cessation of the flow. Upon the recurrence of each menstrual flow, the skin affection was intensified and took a similar course as on previous occasions. The writer was finally consulted on account of the exceedingly profuse flow. The child was well developed, short in height, and very plump. She complained of great weakness and was very anemic, the quantity of hemoglobin being reduced to 45 per cent. A recto-abdominal examination revealed no pathological condition to account for profuse bleeding. Incidentally my attention had also been called to the eczema. The girl was placed upon the use of stypticin in doses of  $\frac{1}{4}$  grn. every three hours, beginning four days prior to the next period; and with the beginning of the flow the dose was increased to  $\frac{1}{2}$  grn. every two hours. The result was that the next period continued only five days, the loss of blood was greatly diminished, and the eczema not intensified at this period. The treatment was continued three months; the flow diminishing to three days' duration, and of moderate quantity; the anemia disappeared and the eczema vanished completely without any direct treatment."

### Topically in Dental Hemorrhage

Dr. J. Munk,<sup>18</sup> of Duna-Szerdahely, Hungary:

"Tooth extraction is not infrequently followed by hemorrhage difficult to suppress. Such hemorrhage sometimes recurs in a violent degree as long as twenty-four hours after the operation. There have been instances in my experience in which all the well-known styptics remained without avail, and where only mechanical compression, continued for hours together, succeeded in preserving the patient from bleeding to death. In several such cases, even chromic acid (recommended by Holländer as generally reliable) failed in my hands.

"In a desperate case of this kind, recently, I conceived the notion of *externally* applying one of the stypticin tablets, which I always carry in my emergency outfit for purposes of gynecological hemostasis. I cleared the gum cavity of the clots, absorbed the flowing blood with a cotton tampon, and immediately upon withdrawal of the latter inserted the tablet into the cavity, pressing it down by a new tampon—and lo! the bleeding ceased as if by a stroke of magic.

<sup>17</sup> *N. Y. Med. Jour.*, Feb. 11, 1899.

<sup>18</sup> *Aerzt. Central-Anzeiger*, Vienna, 1899, No. 27.

<sup>16</sup> *Monats. f. Geburtsh. u. Gynäk.*, 1899, No. 3.



"I subsequently tried the same procedure in four more cases; and each time I witnessed the same prompt effect.

" . . . On the ground of my experiences with this remedy, I should venture to suggest its being tried also in bleeding after *circumcision*."

Dr. Richard Bloch,<sup>19</sup> of Zborovitz, Austria:

"Dr. Munk's recent communication on the efficacy of the local application of stypticin in otherwise intractable dental hemorrhage caused me to try this remedy—which had already gained my confidence as a very reliable internal hemostatic in gynecologic practice—in my dental work.

"I do not find it necessary to recount such—happily rare—cases of uncontrollable bleeding as described by Munk. Among over 7,000 cases of tooth extraction occurring in my seven years' general practice at this place, I have found but one instance of hemorrhage non-amenable to ordinary measures. For even the ordinary experience of the general physician with dental practice sufficiently demonstrates the insufficiency of the usual line of styptic measures (when viewed in the light of the proper stomatologic requirements).

"The older means all prove unreliable at times; moreover the prompt-acting ones (such as carbolic acid, iron tri-chloride, chromic acid, etc.), entail the drawback of undesirable escharotic side-action; while the non-escharotic measures (such as plugging, heat and cold, hot or cold rinsing, etc., consume too much time and are otherwise, inconvenient when the bleeding tendency is at all obstinate. The remedy which, before I tried stypticin, had given me the least dissatisfaction on the whole, was hydrogen dioxide. This, however, proved wholly ineffectual in those cases where (either in the attempt to correct the sequelæ of previous bungling work by so-called 'tooth-pullers,' or from purely pathologic causes) it was necessary to operate in a field deluged with a constant flow of blood; for the reason that the dioxide, in exercising its styptic function, produces so much foam as to necessitate renewed cleansing of the field; which process, whether executed by rinsing or by swabbing-off, induces renewed bleeding.

"In a case of this latter kind, the superiority of stypticin over all other styptic agents, shown in the previously mentioned paper of Munk, first became forcibly apparent to me. A lower first molar had been badly fractured very low down by a quack "tooth-puller." The line of fracture ran very obliquely down on the lingual side, while the surrounding gum had been deeply lacerated and bruised by repeated crude attempts, after the occurrence of the fracture, to seize and extract the remaining portions of the root. The excessive pain occasioned thereby had forced the patient to call upon me for relief. The bleeding from the injured gum was found to be persistent, and to become still more aggravated by every attempt at swabbing-off with a tampon; so that the exploration of the field for the purpose of locating the root fragments was rendered quite impossible. But as the patient was suffering violently, she implored immediate extraction. Accordingly I applied hydrogen dioxide. This soon stopped the bleeding, but obscured the field completely by foam—in which condition several random attempts at

extraction necessarily failed, precisely as I had foretold the patient they would.

"Thereupon I tried a stypticin tablet, according to Munk's method—applying the tablet directly to the wound. Hardly had half of the substance melted, when the bleeding ceased and I was enabled to clean-off the field and obtain an exact survey of the location of the roots, whereupon each one in turn was seized and extracted by a single movement, in rapid succession. Since this first experience, I have uniformly and with invariable success used stypticin wherever, in my former practice, I would have employed hydrogen dioxide.

"Later on, I tried to replace the tablet form of the remedy by a 10-per-cent. aqueous solution, on cotton; but the objection of the patients (especially children) to the bitter taste caused me to abandon this for the powder form of stypticin, made to adhere to a slightly moistened cotton tampon. In this form I find the remedy to manifest to the highest degree its hemostatic virtue, while showing its sole drawback—the bitterness—in the least degree. I have found that, with the aid of stypticin, all difficult root-extractions have become far more easily manageable and more rapidly performable than with any other form of hemostatic or styptic measure; because directly upon removal of the stypticin tampon, each single root was found to be clearly perceptible as to location, size and form, and readily and securely accessible to the instrument; without any obstruction by clotted blood, or even saliva, having to be first removed.

"For it appears that stypticin is not at all a blood-coagulant; nor that it acts in any wise analogously to any of the older styptics—that is to say, by any chemical effect or reaction upon the blood itself. Thus, it has in these experiences been shown to be a *true hemostatic—not a styptic*, in the narrow sense of this word. Evidently, its action is a vaso-motoric, or rather vaso-constrictive, one, exercised on the small vessels lying near the surface of the injured tissue, into which it seems to be almost instantly absorbed.

"The absence of blood-coagula and of salivation in the above last-described method of stypticin application is a particular advantage to the operator when several extractions have to be successively performed on one subject. Thus, whenever I have multiple extractions on both sides, I am enabled to proceed unhindered with the next extraction (situated on the opposite side of the jaw) immediately after the insertion of the stypticin tampon into the socket on the first side—thus not first having to spend time in waiting for cessation of the bleeding on that side. The freedom from hindrance by salivation, which I observed, I take to be due to the bitter taste of the remedy, whereby the patient's tongue is involuntarily held away from contact with the neighborhood of the tamponed cavity.

"I yet venture to add the suggestion that stypticin might also advantageously be employed for topical use in *parenchymatous bleeding from cavities*, in surgical and gynecological practice."

Dr. J. Jahl,<sup>20</sup> of Pilsen, Bohemia:

"The stypticin tablets manufactured by Merck are—as described by me in *Zahnärztliche Rundschau* recently—an excellent, promptly-acting, topical hemostatic in profuse and persistent hemorrhage following dental operations.

"I now, however, preferably employ tampons of absorbent cotton, strongly impregnated with

<sup>19</sup> *Wiener Zahnärztl. Monats.*, 1899, No. 12.

<sup>20</sup> *Ärztliche Central-Ztg.*, Vienna, 1900, No. 24.



the styptic powder (according to the suggestion of Dr. Bloch, of Zborovitz). These I now use in every case of pronounced bleeding after tooth-extraction; and the result is highly satisfactory. The certain and prompt styptic action of the stypticin serves admirably to allay or obviate the trepidation and dismay which is apt to be caused in nervous patients by any, even a trifling, flow of blood."

Dr. R. Marcus,<sup>21</sup> director of the dental department at the Carolinum, in Frankfort-on-the-Main:

"At the suggestion of Dr. Freund, of Frankfort-on-the-Main, I have for a year treated a great number of the dental hemorrhages occurring in my hospital, private and society practice, with stypticin, in the view of comparing its action with that of the other known styptic agents.

"Among the great mass of clinical material thus passing through my hands in the course of the year, I found indeed but six severe cases; but those were very grave indeed. The result, however, was uniformly the same when stypticin was employed, whether the bleeding was light or severe. The flow of blood was arrested almost instantly in every case, no matter how copious and persistent it had been. The stypticin treatment was found to have also these advantages over others: first, the application was *painless*, there being no need of applying pressure on the tampon; second, the healing of the wound always proceeded smoothly.

"The *internal* administration of stypticin, prophylactically or remedially, in patients known to be free bleeders, was without avail. But the application of it, in powder on a cotton tampon, *directly* to the wound, has been found by us a truly ideal styptic measure. Such application is also suitable in other traumatic lesions, as cuts.

"I do not hesitate to declare stypticin superior to all other styptic or hemostatic agents."

Dr. Hulisch,<sup>22</sup> of Brunswick:

"The arresting of a hemorrhage after tooth-extraction in a *bleeder* or *hemophilic* may form, at times, one of the most difficult tasks confronting the dental surgeon.

"Although the usual styptic measures generally suffice for the treatment of bleeding after extraction, I still familiarized myself with the new hemostatic, stypticin, some time ago, and have found it to yield excellent work. Especially did this become apparent in a typically obstinate case of hemophilia. The patient came to me with heavily swollen face, and complaining of severe toothache. In a previous instance of this kind, he reported, he had bled for five days after extraction. On the present occasion the extant phlegmons demanded extraction of the diseased tooth; and, upon this being performed the expected copious and persistent hemorrhage occurred, and it diminished only upon my placing a stypticin tablet in the alveola and plugging the latter with a cotton tampon. During the night the tampon gave way, whereupon the bleeding recommenced in moderate measure. In the morning I renewed the application and the bleeding ceased. Two days later I cautiously removed the plug; and the bleeding was not renewed.

"Since then I am accustomed in all cases of profuse bleeding after extractions to use the stypticin, plugging as described. The patients find this sort of hemostatic therapy decidedly

more agreeable than thermocautery or the application of ferric chloride solution; which latter, even with the most cautious usage, mostly induces a gangrenoid erosion of the gum."

### Topically, in Epistaxis

Dr. Munk,<sup>23</sup> states:

"On the ground of my experience with the topical styptic action of stypticin (substance) in dental hemorrhage, I tried 10-per cent. *solutions* thereof in nasal hemorrhage. The result here was likewise a striking success."

Dr. Marcus:<sup>24</sup>

"I happened to have occasion to treat two rather severe cases of epistaxis in which I applied stypticin with satisfactory results."

Dr. Jahl,<sup>25</sup> of Pilsen, Bohemia:

"My satisfactory experience of stypticin as a dental hemostatic suggested to me the advisability of testing it in other forms of bleeding.

"There happened to be ample opportunity for such tests, just then, in the great number of cases of measles overrunning the town. In this epidemic the climax of the exanthesis was preceded by cumulations of severe nasal hemorrhage.

"I was hastily called to a three-year-old child who was described as bleeding profusely from the mouth. As I had found measles in the family on the preceding day, I at once thought of a severe form of epistaxis, and took a supply of stypticin gauze with me for tamponing.

"The child was found in quite an anemic state and still repeatedly vomiting both fluid and clotted blood. Inspection showed a septum hemorrhage. On tamponing both nares with the stypticin gauze the bleeding was almost immediately arrested; no blood trickled from the tampons.

"Six hours thereafter I removed the tampons. The bleeding did not recur. Next day this patient's brother was seized with copious bleeding; here also the stypticin application stopped the flow in the promptest way. In previous instances tamponing in precisely the same way with iodoform gauze, or iodoform tannin gauze, had not such prompt effect; for mostly there had been prolonged oozing from the tampons.

"In other cases—such as of traumatic epistaxis—I obtained the same good results.

"It is highly probable that the remedy exercises a peculiar specific action on the vaso-constrictor fibers, thereby rapidly inhibiting the exudation of blood. There is no coagulating effect.

"The encouraging experiences had in epistaxis suggest trials in wider fields. The *gynecologic* practice is likely to offer abundant opportunity herefor; and I shall not fail to test the efficacy of *topical* stypticin applications in such cases as they may offer in the place of other measures as hitherto used."

### In Obstetrics and Gynecology

Dr. Gottschalk's<sup>26</sup> first report, with tabulated details of forty-seven cases treated wholly with stypticin—made after nearly two years' systematic observation and comparison as to the action of the various hemo-

<sup>23</sup> (See footnote 18.)

<sup>24</sup> (See footnote 21.)

<sup>25</sup> (See footnote 20.)

<sup>26</sup> *Therap. Monats.*, 1895, No. 12.

<sup>21</sup> *Deut. Zahnärztl. Woch.*, No. 123.

<sup>22</sup> *Zahnärztl. Rundsch.*, 1899, No. 431.

static agents—contains the following conclusions:

"Pure subinvolution of the uterus after childbirth—Uniformly prompt effect; not any failure. (By 'pure subinvolution' I mean such as is caused merely by muscular atony, not by the presence of débris of placenta. If the latter are present ergot preparations and hot douches are indicated.)

"Fungous endometritis, or bleeding from the ovaries—Symptomatic benefit as to hemorrhage and pain; but curettage or cautery not generally superseded thereby. When, however, the latter measures prove insufficient to still the flow, the subsequent use of stypticin is mostly effectual.

"Myomata—Lessening of flow in every instance.

"Climacteric hemorrhage—The same.

"Purely congestive menorrhagia (without anatomical change—Equal efficacy as from hydrastis preparations.

"Intrauterine polypi (even very small endometric neoplasms)—Insufficient effect; the removal of the growths by other means is needed."

In recapitulating the results of his six years' experience in the use of stypticin, Dr. Gottschalk<sup>27</sup> states:

"The inability of stypticin to effect uterine contractions by which a foreign body could be ejected from the uterus makes it less effective than ergot in such uterine hemorrhages after abortion, as have their origin in retained fragments of the placenta or in those which are due to small mucous polypi. Submucous myomatous polypi must, when present, be removed before the remedy can exert any beneficial action.

"Stypticin has been found effective in the following categories of cases:

"1. In purely climacteric hemorrhages.—Special stress is laid on the term 'purely' climacteric, because malignant processes are covered up by many so-called 'climacteric' hemorrhages. Every so-called climacteric hemorrhage following a very protracted period of amenorrhea (say 9 to 12 months), and then becoming suddenly aggravated after coition or without discoverable cause, should be suspected as being malignant and promptly investigated as to its possibly requiring surgical interference, without losing time by waiting for effects from internal medication.

"2. In hemorrhages following defective uterine contraction after delivery or abortion, when not due to decidua or placental débris.—There is a form of such subinvolution, characterized by abnormally increased blood-pressure, which causes continued or recurrent hemorrhage. This is usually relieved at once by the subcutaneous injection of 0.2 Gm. (3 grn.) of stypticin; sometimes, however, only after repeated injections. (If the atonic hemorrhage is due to insufficient closure of the placental veins after expulsion of the placenta, then large doses of ergot, with hot vaginal irrigations, are preferable.) Again, stypticin is the proper remedy in subinvolution referable to inflammatory para- or peri-metric exudations, because then the hemorrhages are again due to increased blood-pressure in the intramucous vessels of the uterine region.

"3. In reflex (secondary) hemorrhages; i. e., those caused by diseases of adnexa or of the parametrium, without the uterus itself being diseased.

"4. In congestive hemorrhages of young girls not referable to a pathologico-anatomic condition.—Here the remedy is of particular benefit when used for a few days before the menstrual periods.

and in such cases a permanent good result is frequently obtained.

"5. In myomata.—Here the remedy deserves more extended application, within the limits noted.

"6. In hemorrhages during pregnancy.—Here I have so far employed stypticin only so long as no uterine contractions had as yet occurred. (When they had, I usually prescribed repose in bed, opium suppositories, and viburnum internally.) Other observers, however, report having prevented threatened abortion by the administration of stypticin alone. (I should think it might be eligible, in urgent cases, to combine the application of the opium with the stypticin treatment.)"

Dr. Nassauer:<sup>28</sup>

"Climacteric cases.—Ideal effect; prompt and complete. Subinvolution, post-partum and post-abortion, fourteen cases of both kinds together—Action certain, and in almost every case very speedy. After curettement in endometritis—Prompt and permanent effect. Adnexial disease of any kind (adnexial tumors, salpingitis, oöphoritis, para-urethritis, etc.), but with sound uterus—Excellent result, very prompt. Congestive hemorrhage; menorrhagia and dysmenorrhea; especially virginal hemorrhage at tender age, without pathologico-anatomic genesis—Action as of a specific (probably largely supported by the sedative quality of the remedy). Myomata—Favorable action if the mucosa is not affected. In inoperable carcinoma with copious bleeding, stypticin may occasionally serve as a temporary palliative."

Dr. Nassauer,<sup>29</sup> two years later:

"Generally, non-action or insufficient action hemostatically, when bleeding is referable to a relaxed uterine condition; also when the endometrium is hyperplastically affected (not in mere 'catarrhal' endometritis!), or when other foreign bodies (decidua, etc.) or neoplasms irritate it. Even in certain cases of these categories, decided analgesic benefit has been had, even when the hemostatic effect was but partial, or temporary, or even nil. Satisfactory and even excellent results are generally gained, as to hemostasia, in all the many various kinds of hemorrhages not characterized as above.

"So important is the part taken by the endometric condition in these indications, that I have found stypticin available as a means of differential diagnosis—to determine, by its action or non-action on the bleeding, whether the intra-uterine mucosa was sound or diseased.

"In the bleeding of threatened abortion stypticin seems indicated; although our observations hereon do not show uniform results."

Dr. Boldt's<sup>30</sup> results from stypticin are thus summed up in classes:

"1. Prolonged and profuse menstruation in unmarried anemic subjects, without discernable change in the pelvic organs (9 cases).—Diminution of flow; when dysmenorrhea was present, the latter lasted as long as the bleeding did; three cases required repetition at next period; two did not; four passed from control.

"2. Fibromyomata causing meno- and metrorrhagia (4 cases).—One case benefitted somewhat as to flow and pain.

"3. Hemorrhage from inoperative cancer (5 cases).—No result.

"4. Hemorrhage from peri- and para-metritis

<sup>28</sup> *Therap. Woch.*, 1897, Nos. 32 and 33.

<sup>29</sup> *Monats. f. Geburtsh. u. Gynäk.*, 1899, No. 5.

<sup>30</sup> *Med. News*, April 8, 1899

<sup>27</sup> *Therap. der Gegenw.*, Aug., 1899.



after abortion (3 cases):"—Marked improvement; 1 case subsequently operated for inflamed adnexia; 1 cured.

"5. Hemorrhage from peri- and para-metritis after full-term delivery (2 cases):"—Prompt benefit; cessation secured on third and fifth days (bleeding had lasted ten and twelve days before this treatment).

"6. Profuse and prolonged menstruation in multiparæ without anemia and without changed endometrium, but moderate enlargement of the ovaries (8 cases):"—Seven cases promptly improved; 2 of these lost from slight thereafter; the other 5 ceased menstruating on about third day of treatment; 1 case without effect.

"7. Irregular bleeding after puerperium and removal of decidua or placenta by curettage (12 cases):"—Complete cure, promptly, in each case.

"8. Irregular bleeding after puerperium, with retention of some placental tissue because patients declined curettage (2 cases):"—No marked benefit.

"9. Hemorrhagic endometritis (8 cases):"—Stypticin first without effect; then curettage with but temporary effect on hemorrhage; then again stypticin, with marked benefit on second day. Next period, stypticin prophylactically, two days ahead: perfectly normal menstruation. Seven cases altogether with good results; one without effect, and subsequent control lost.

"10. Fungous endometritis (2 cases):"—No effect.

"11. Retroflexion with chronic endometritis (2 cases):"—Very slight effect only, on protracted trial.

"12. Chronic metritis and endometritis (7 cases):"—One marked improvement; one moderate; remainder unaffected.

"13. Irregular bleeding of multiparæ at menopause (5 cases):"—Prompt and good results.

"14. Irregular bleeding without apparent cause (1 case):"—The history of this case of complete cure upon protracted stypticin treatment presents some remarkable features; here is the author's statement in full:

"Florence M., aged twenty-nine years; married three years, no children; one abortion at two and a half months' gestation. Two years ago, about one year prior to her seeking advice, the menstrual period began to lengthen in duration from two to three days; gradually this time increased until it reached two weeks. She had been curetted and had received local treatment at other hands, with but temporary benefit. Another *abrasio uteri*, undertaken by the writer, showed nothing abnormal. The patient was then put upon stypticin, which had some beneficial effect on the third day. She was kept on the drug for three and a half months, and became entirely cured. Four menstrual periods have since passed normally. Fluid extract of hydrastis had had no effect."

"15. Post-puerperal bleeding caused by subinvolution (11 cases):"—These cases had been "from six weeks' to four months' standing after delivery," before treatment begun. The typical case described in detail was benefited within twenty-four hours, and cured of the flow in two and a half days. The author says: "In only one instance of the eleven was the result inappreciable; with this exception the therapeutic value for such indication was all that could be desired or expected."

"16. Meno- and metrorrhagia resulting from traumatic peri- and para-metritis (3 cases):"—The author says:

"These cases were due, in one instance, to dila-

tation of the cervix, and in two other instances to intra-uterine applications. Successful treatment was effected with stypticin; in all three cases the flow of blood began to diminish twenty-four to thirty-six hours after the commencement of the drug, and was arrested completely within three and four days."

"17. Bleeding in pregnancy (3 cases):"—"Stopped with stypticin."

Added to the above catalogue is the following statement:<sup>31</sup>

"My house surgeon, Dr. Buddeke, used one hypodermic injection of stypticin, after a delivery of *placenta previa*, with immediate effect on the bleeding."

Also this:

"Since writing the above, my colleague, Dr. A. P. Dudley, reports a case of profuse metrorrhagia due to *uterine fibroid* controlled promptly by stypticin given subcutaneously as described above. I have also observed the arrest of flooding in a case of *interstitial fibromata* from the administration of the drug in  $2\frac{1}{2}$ -grm. doses every two hours; also the arrest of *dysmenorrhea* associated with intense headache during profuse and prolonged menstruation in another case."

### Administration

In most of the indications discussed under "Obstetrics and Gynecology," the majority of the observers agree pretty closely as to the *measure or degree* of success gained. Where some of the authors here quoted differ on this particular considerably, these differences may readily be attributable not only to variations in the clinical material and the circumstances; but obviously also, in quite a conspicuous sense, to the very *different doses* employed by pioneer investigators.

That a new drug had to be employed cautiously at first, until the safe limits for its dosage had become established, is explanation enough for imperfect results to have appeared in early experience. When, later on, a wide and prolonged practice had extended the limits of dosage, it was but natural that more decided and more uniform successes were obtained.

It may be taken as a good augury for the *permanence* of a new remedy when during seven years' trial the reports on its availability are found constantly to increase in fullness and to become more and more positive as regards its virtues, as is the case with stypticin.

Even as early as 1895—not quite two years after the first trial of stypticin as a gynecologic hemostatic—Dr. Gottschalk,<sup>32</sup> the first experimenter with this drug, and the one who, *four years after* the date of his first paper on stypticin, published a *review paper* thereon covering six years' expe-

<sup>31</sup> *Med. News*, April 8, 1890.

<sup>32</sup> *Therap. Monats.*, 1895, No. 12.



rience altogether, found occasion to make the following public statement:

"Owing to the number of new remedies with which the markets are flooded, I approached the clinical probation of stypticin with great skepticism. This attitude appeared to me, after my first ten cases thus treated, to be well justified; for my results were not at all promising. As I soon found, however, this experience was not due to the remedy, but to the *insufficient doses* in which it had been given—which were but Gm. 0.025 ( $\frac{3}{8}$  grn.) three times a day.

"The effects were totally different, when I doubled, not only the single, but also the daily dose; and grew still more striking when I no longer hesitated, in profuse uterine bleeding, to inject Gm. 0.2 (3 grn.) at one sitting per day, subcutaneously, into the gluteal muscles.

"The injections were given in 10-per-cent. aqueous solution, sterilized, and kept in a hermetically sealed tube until required; and care was taken to carry the needle deeply into the muscular structure. The internal doses employed were mostly of Gm. 0.05 ( $\frac{3}{4}$  grn.) five to six times per day, in powders, or in gelatin pearls."

[The latter are now replaced by sugar-coated tablets.—Ed.]

Of importance also appears to be the following hint, by the same author:

"My experience has shown me that it is advisable, in *menstruating* patients, to give the remedy *prophylactically* also. The effect in menorrhagias is vastly superior, when the administration of stypticin is begun four or five days *ahead of the impending period*. Smaller doses are available here for—say  $\frac{3}{8}$  grn.—about four times per day; as soon as the period begins order *twice that amount* to be taken during its continuance. If a patient be not seen until the bleeding is at its height, the prompt *subcutaneous* intramuscular gluteal injection of 3 grn. (as before explained) is advisable; this may be repeated for several days without harm."

It is significant that, four years later, the same author *once more doubled* the internal dosage he used, as will be seen from the following:

"The usual effective single dose is Gm. 0.1 ( $1\frac{1}{2}$  grn.), four or five times per day at appropriate intervals."

To this he adds:

"A patient who took by mistake, the *daily* dose of Gm. 0.4 (6 grn.) *at once*, soon fell into a slumber lasting half an hour, from which she awoke, refreshed, without feeling cause for any complaint whatever."

As to the relative merits of internal *versus* subcutaneous administration, Dr. Gottschalk<sup>33</sup> makes these remarks:

"I have gained the general impression as if the subcutaneous administration were superior, as to promptness of effect, to the internal; although the latter is undoubtedly more convenient. In all the great number of injections made under my observation, the most that ever was reported, in the way of *subjective* symptoms, was, in some few isolated cases, a burning sensation and dullness immediately about the puncture, lasting some hours. But I never witnessed, in any case, any external sign of irritation; there was absolutely

never any infiltration. I wish to call attention once more, however, to my having used only absolutely *sterile* solutions, and injected *deeply* into the gluteal muscles."

In his review, after four years *additional* experience, Dr. Gottschalk<sup>34</sup> says:

"The impression that subcutaneous administration of 2 Gm. (30 min.) of a 10-per-cent. aqueous solution—best applied *bilaterally*, away down into the glutei—surpasses in efficacy the internal dosing, has remained with me as it was before."

### Other Opinions about Dosage

Although the determinations of dosage and manner of administration, as given by Gottschalk, may be held to cover the actual greater bulk of the practice, as demonstrated by the majority of observers who have publicly reported, it may still be of service to note what variations have been tried by diverse experimentors. Following are the most notable records of this kind (taken from previously cited papers of the several authors named):

Gärtig: "We begin with 0.05 Gm. ( $\frac{3}{4}$  grn.) twice daily; *rose* later to four such doses daily, and still later even to eight. Many patients received this dose six times per day for weeks *continuously*, without any untoward side-effects being witnessed."

Nassauer (first report): "In recent times we have *doubled* the initial single dose of 0.05 Gm.; so that we are now *regularly* giving Gm. 0.1 ( $1\frac{1}{2}$  grn.) four to five times per day."

Nassauer (later report): "In the legion of menorrhagias and irregular bleedings caused by *diseased adnexia*, we invariably witnessed one and the same favorable course of effect, thus: Two syringefuls of the 10-per-cent. solution (being 3 grn. stypticin altogether) are injected into the gluteal muscles, avoiding the proximity of the ischial protuberances; the patient comes to feel somewhat fatigued, sleeps well the next night, and on awakening finds the flow stopped, coming up the following day to report: 'I am quite well.' I have had over twenty identical observations of this kind."

Von Braitenberg: "When accidentally having only the powder form or *non-coated* tablets at hand, I always used *wafers*, thereby avoiding any possible repugnance to the bitterness of the dose."

Bakofen: "Using the  $\frac{3}{4}$ -grn. tablets, four to five per day, we but rarely found occasion, in the total treatment, to consume more than 20 such tablets on any case. Usually, the desired effect was had after eight to fifteen such doses."

Abegg, in his detailed report on 14 cases, shows an average of *only three* doses per day, one  $\frac{3}{4}$ -grn. tablet per dose. In several instances, the treatment was either begun or ended with but two such doses per day. In a few others, it either began, or soon ran up to, four or five tablets per day, according as the symptomatic condition required it.

Walther: "When the menstrual term was known, I gave but one tablet ( $\frac{3}{4}$  grn.) per day for one or two days *beforehand*; then two to four on the first day of the flow, and four to six on the second, as might be needed; four on the third, and

<sup>33</sup> (See footnote 32.)

<sup>34</sup> *Therap. der Gegenw.*, Aug., 1899.

less on the fourth; thus using altogether an average of twelve to fourteen tablets during a strong period—less on subsequent ones, if any."

Boldt (referring to typical cases in certain of the numbered series quoted): Series 1—Two days *beforehand*,  $\frac{1}{2}$ -grn. doses, twelve hours apart: first day of flow,  $\frac{3}{4}$ -grn. every four hours, without effect: second day,  $2\frac{1}{2}$ -grn. doses every two hours, without immediate diminution of flow; same dosage two days longer. Total needed, 15 grn.—Series 4.— $\frac{3}{4}$  grn. every three hours, six doses without marked effect; thereupon  $1\frac{1}{2}$  grn. *subcutaneously twice*, with marked effect.—Series 7— $1\frac{1}{2}$ -grn. injection in buttocks, repeated after eight hours; marked effect. Subsequently,  $\frac{3}{4}$ -grn. a few times by mouth. Complete cure.—Series 13— $\frac{3}{4}$ -grn. doses [frequency not stated] checked flow completely in three days. Three recurrences; each time good result was had almost immediately.—Series 15— $\frac{3}{4}$ -grn. every two hours, diminution of bleeding within twenty-four hours; cessation in two and one-half days."

Freund (on review of stypticin literature): "The most usual dosage in abnormal flows connected with the menstrual function seems to be five or six tablets of  $\frac{3}{4}$  grn. each, per day; in certain cases it is well to *precede* this by two or three tablets per day, for several days *before* the period. For promptly subduing *vehement hemorrhages*, the subcutaneous administration into the gluteal muscles of two syringefuls of solution, each containing  $1\frac{1}{2}$  grn. of stypticin, is sometimes preferable."

### Formulas for the Use of Stypticin

Compiled from the literature on stypticin and from leading medical journals:

#### Abortion:

Stypticin..... 8 grn.  
Cinnamon Water..... 1 fl. oz.  
Teaspoonful every one to three hours.  
(To check *hemorrhage*.)

Stypticin..... 15 grn.  
Distilled Water (freshly boiled..  $2\frac{1}{2}$  fl. dr.  
Inject hypodermically 15-30 min.  
(In *urgent cases* of hemorrhage.)

#### After-pains:

Stypticin..... 15 grn.  
Ergotin-Bonjean..... 30 grn.  
Simple Elixir..... 2 fl. oz.  
Teaspoonful every two hours as long as required  
(When due to *blood-clots*.)

#### Dental Hemorrhage:

Stypticin..... 15 grn.  
Place small quantity in socket, and pack with absorbent cotton.  
(In bleeding following *extraction*.)

#### Dysmenorrhea:

Stypticin..... 20 grn.  
Ext. Belladonna..... 4 grn.  
Ext. Stramonium..... } of each, 5 grn.  
Ext. Hyoscyamus..... }  
Equinine..... 40 grn.  
Make into 20 pills. One three times daily.

#### Endometritis:

Stypticin..... 8 grn.  
Elixir Calisaya..... 1 fl. oz.  
Teaspoonful every three or four hours.  
(For *bleeding*.)

#### Epistaxis:

Stypticin..... 30 grn.  
Water..... 4 fl. dr.  
Impregnate cotton and pack nostrils.  
Stypticin..... 12 grn.  
Fl. Ext. Hamamelis..... 1 fl. oz.  
Twenty to thirty drops in sweetened water every hour.  
(In *venous oozing*.)

#### Gastric Ulcer:

Stypticin..... 10 grn.  
Antipyrine..... 40 grn.  
Simple Elixir..... 1 fl. oz.  
Teaspoonful every 2 or three hours.  
(For *hemorrhage*.)

#### Hematuria:

Stypticin..... 8 grn.  
Fl. Ext. Ergot..... } of each, 4 fl. dr.  
Simple Elixir..... }  
Teaspoonful every three hours.

#### Hemoptysis:

Stypticin..... 8 grn.  
Ergotin-Bonjean..... 24 grn.  
Syr. Rhatany..... 2 fl. dr.  
Distilled Water..... to make 2 fl. oz.  
Dessertspoonful every two hours till bleeding stops. Put ice-bag to chest.

Stypticin..... 10 grn.  
Lead Acetate..... 20 grn.  
Powd. Digitalis..... 10 grn.  
Powd. Opium..... 5 grn.  
Make into 10 pills. One every three or four hours.

#### Intestinal Hemorrhage:

Stypticin..... 12 grn.  
Ergotin-Bonjean..... 30 grn.  
Simple Elixir..... 3 fl. oz.  
Teaspoonful every two hours. Apply ice-bag to abdomen.

#### Menorrhagia and Metrorrhagia:

Stypticin..... 10 grn.  
Fl. Ext. Ergot..... 4 fl. dr.  
Simple Elixir..... to make 2 fl. oz.  
Dessertspoonful every two or three hours till checked. In habitual cases, give teaspoonful four or five times daily for a few days prior to periods.

Stypticin..... 15 grn.  
Ergotin-Bonjean..... 30 grn.  
Ext. Gossypium..... 30 grn.  
Dispense in 10 capsules. One every two or three hours till checked.

#### Metritis:

Stypticin..... 8 grn.  
Tinct. Aconite..... 15 min.  
Fl. Ext. Gelsemium..... 1 fl. dr.  
Simple Elixir..... to make 1 fl. oz.  
Teaspoonful two or three times daily.  
(Constitutional treatment.)

#### Post-Partum Hemorrhage:

Stypticin..... 5 grn.  
Ergotin-Bonjean..... 12 grn.  
Dispense in two capsules. One repeated in thirty minutes if necessary.

#### Yellow Fever:

Stypticin..... 20 grn.  
Antipyrine.....  $1\frac{1}{2}$  dr.  
Syrup..... 4 fl. dr.  
Orange-flower Water..... to make 2 fl. oz.  
Teaspoonful every three or four hours.  
(For *black vomit*.)

# Book Notices

THERE is no science which has a periodical literature at all comparable in volume to that of the science of medicine. It is, of course, an open secret that much of what is printed is either entirely worthless or of but ephemeral interest, but it is just as true that during the year numerous articles appear—their number runs into the hundreds or even thousands—which are of the highest scientific and practical value, and which it would be an irreparable loss to permit to go unread or unnoticed. To wade through the hundreds of medical journals in order to select the wheat from the chaff would be a physical impossibility for the ordinary physician; and for more than one reason. It would occupy so much of his time that he would have none left to make practical use of his reading; namely, to apply it in his practice; the financial burden of subscribing for so many journals is such as could be borne by but few physicians, while the number of American medical practitioners who read French, German, Italian, Spanish, Russian, etc., is very limited. It is for these various reasons that journals, annuals, cyclopedias, etc., whose special province it is to sift the good from the worthless and then to digest that good and to boil it down to the smallest compass compatible with clearness and comprehensiveness, have found so much favor with those members of our profession who, in spite of their multitudinous duties, wish to keep abreast of the times. One of the best works in this line is *PROGRESSIVE MEDICINE: A QUARTERLY DIGEST OF ADVANCES, DISCOVERIES, AND IMPROVEMENTS IN THE MEDICAL AND SURGICAL SCIENCES*. It is edited by Prof. Hobart Amory Hare and Charles Adams Holder. The volumes are issued in March, June, September, and December. The three volumes for 1900 which have appeared so far give a most comprehensive and at the same time concise, well-digested, and readable review of the subjects of which they treat. Volume I treats of the surgery of the head, neck, and chest, by J. Chalmers Da Costa; infectious diseases, including acute rheumatism, croupous pneumonia, and influenza, by F. A. Packard; the diseases of children, by A. D. Blackader; pathology, by Ludvig Hectoen; laryngology and rhinology, by A. Logan Turner; and otology, by Robert L. Randolph. Volume II treats of surgery of the abdomen, including hernia, by William B. Coley; gynecology, by John G. Clark; diseases of the blood, diathetic and metabolic diseases, diseases of the glandular and lymphatic system, by Alfred Stengel; ophthalmology, by Edward Jackson. The contents of volume III are as follows: Diseases of the thorax and its viscera, including the heart, lungs and blood-vessels, by William Ewart; diseases of the skin, by Henry W. Stellwagon;

diseases of the nervous system, by William G. Spiller; obstetrics, by Richard C. Norris. A well-arranged and complete index concludes each volume. The mechanical execution—the paper, printing, and binding—is excellent. The price—\$10 for the four bound volumes—is also very reasonable. (Philadelphia and New York: Lea Brothers & Co.)

THORNY is the path of the *fin de siècle* physician—financially. Many are the obstacles he has to contend against, numerous are the dangers that threaten his existence. That, as a money-making career, medicine is a failure is admitted by the great majority of our profession. What has brought about such change? Why has a once remunerative profession become an extremely unprofitable one—from a money standpoint? Dr. G. Frank Lydston, in his brochure *MEDICINE AS A BUSINESS PROPOSITION*, attempts to analyze the causative factors of our ills and to suggest a remedy. Some of the causes, according to the author, are: College, hospital, and dispensary evils, superabundance of medical colleges, medical tin gods, inconsistencies and absurdities of ethics, proprietary-medicine fakes, the druggists, the charging of too low fees, lack of business methods, lack of judgment of human nature, false pretences of prosperity, etc. The author does not mince matters, and his style is just perhaps a little too breezy, too “western” for the effete East. While the analysis of existing conditions is pretty thorough-going, the remedies offered would, in our opinion, prove complete failures. Advising, for instance, the physician to dispense his own medicines in order to get square with the druggist is poor advice indeed. Physicians who have tried to do it in our section have found out that they have not increased their profits; they have only lowered themselves in the estimation of their patients. (Chicago: Riverton Press. Price, 25 cents.)

THE discoverers and introducers of new remedies are generally apt to put to the front and to emphasize the good points of their products, while glossing over their disagreeable or dangerous by-effects. In the *NEBENWIRKUNGEN DER MODERNEN ARZNEIMITTEL* (The By-Effects of the Modern Remedies), Prof. Otto Seifert has done a useful piece of work. All the important remedies introduced into therapeutics within recent years are considered. Their medical properties and doses are given, especial attention is paid to their by- and after-effects, the data being given both from the author's own experience and from the reports in current literature. (Würzburg: A. Stuber's Verlag, 1900.)



# MERCK'S ARCHIVES

OF

## THE MATERIA MEDICA <sup>AND</sup> ITS USES

A MONTHLY JOURNAL FOR THE PRACTICING PHYSICIAN

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### Our Year's Effort for the Advancement of Materia Medica

WITH this number of MERCK'S ARCHIVES the second volume comes to a close, and the work of the year is at an end. Preparation must now be begun for a new effort in behalf of our readers, and one which we promise them shall lack no element of value which this volume contains. It shall be our constant aim to improve the contents of our journal, and to make it more and more of practical value to every practitioner who consults its pages. Already it stands forth as among the most important helps available anywhere for the use of such physicians as seek to be in the front rank of the profession, in that it is the only journal devoted solely to drug therapy. However much the scientifically inclined members of the profession may prefer to devote their time to other departments of study than materia medica and therapeutics, the utilitarian demands of this branch are such that it can only be neglected by them at their peril. Everything else in medicine is subordinate to it, and must remain so as long as the final object of the physician's efforts is the curing of the sick. Only the therapeutic nihilist can deny this, and the progress we are making in the knowledge of drugs and their uses is steadily eliminating this class of thinkers from the ranks of

scientific medicine by correcting their false position or forcing them toward the wild vagaries of Christian Science or kindred forms of quackery. Therapeutics is to medicine what life is to the body. Without therapeutics there could be no science of medicine, for all else pertaining to the practice of medicine would be dead. How to cure his patients is, or should be, the first, last, and uppermost thought in the mind of the doctor when face to face with the sick. It is then that he thinks of remedies and wonders to himself whether there is not something that could bring relief or hasten recovery more speedily than the drugs at his command. To know the latest remedies and their uses, and the latest uses to which the older remedies have successfully been put, is a great comfort to the doctor and a greater blessing to his patients. To keep abreast of this kind of information it is advisable to read MERCK'S ARCHIVES, however many other medical journals may be constantly read. Nowhere else can this useful information be found in so compact a form. In the average first-class medical journal there has always been a woful dearth of this particular kind of knowledge. During the year now closing the ARCHIVES has published fifty-seven original papers on

materia medica and therapeutics, and has brought together four hundred and fifty-four full, concise, and clear abstracts of as many distinct papers on these subjects, from all parts of the civilized world. These abstracts represent every available worthy paper upon drugs and their uses published in the medical press of Christendom during the twelvemonth just ending. As some drugs are of much more importance to the profession than others, these five hundred and eleven articles naturally were not all upon as many separate remedies.

Drugs like digitalis, belladonna, cocaine, carbolic acid, guaiacol, and formaldehyde were treated of more than once, but the grand total that received special consideration was two hundred and fifty. No other medical journal known to us can show such a record as this. Indeed, if the reader will sit down with any dozen of the best medical journals at his command and count the number of distinct articles upon therapeutic subjects they contained during the year 1900, we venture to predict that he will be surprised at the meagerness of his total, and at the diminutiveness of its size when compared with the number found in the ARCHIVES.

It should, moreover, be noted in this connection that in giving these totals we do not count our two hundred and twenty or so published prescriptions nor the drugs mentioned in them. In our Prescription department we have a valuable feature, and one distinct in character from anything obtainable elsewhere. While most of the prescriptions have been culled from other sources, they were first presented by us in groups suitable for the seasons in which they appeared, and not, as is customary in other journals, given regardless of the time when required by the physician. It is of but little use to give a doctor a model form for a cough remedy in midsummer or for a diarrhea remedy in winter. At the time when he needs such prescriptions it is too much trouble to hunt them

up in the back numbers of his medical journal. The ARCHIVES is here, as elsewhere, always on the alert for the fitness of things, and always seeking to be seasonable. Our department of Queries and Answers, in connection with our prescriptions, has met with much favor from many members of the profession. In future we hope to be able to enlarge its scope and induce a greater number of our subscribers to ask questions. The more we hear from them the better we will like it, and the more satisfactory will it assuredly be to our readers.

Under the heading Collective Investigation our readers have been made aware of the work that is being done with new remedies, the character of this work, and the results that have been obtained up to date. The articles chosen for presentation under this head are such as have been thoroughly considered by leading American and European investigators before being presented to the medical profession for approval. We hope soon to hear of the American Therapeutic Society taking hold of this kind of work, and thus freeing it from every shadow of the charge of bias.

It was with this object in view that we first proposed the organization of such a body. Nothing is needed in medicine more than a reliable tribunal having the entire confidence of medical men, and one that is willing and able to examine with extreme care every promising new claimant among drugs for medical recognition. Only the truth, the whole truth, and nothing but the truth concerning such remedies should be permitted to pass current. We hope to see a division of labor established among the members for collective work, and also to see local therapeutic societies begin to extend such work to every city in the United States.

All such efforts will receive the unqualified support of this journal, and its readers will from time to time be informed of whatever work may be accomplished.

# Lavage—Its Indications, Materials, and Technique

By FLOY McEWEN, M.D.

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THE idea of removing fluids from the stomach originated with the French. Attempts at stomach-washing were made as early as 1832, but the practice of lavage as we know it to-day dates from the time of Fancher and Oser (1879).

The conditions generally calling for the use of the stomach tube are the following:

1. *Gastric pain*, or marked oppression, which has lasted a long time, which is getting worse and which is not relieved by the ordinary methods of treatment. (a) The pain, oppression, and nausea may be purely functional. There may be no gastritis, no organic disease of the stomach. These cases yield readily to treatment. We wash out the stomach once a day. (b) The pain and distress may be due to hyperacidity. These patients vomit acid material. Here there may be an advantage in adding Carlsbad salts to the washing,  $\frac{1}{2}$  oz. being added to 2 quarts of water. These cases take longer to cure. (c) The pain, nausea, and vomiting may be due to a real chronic gastritis. Here lavage has to be continued for one or two years. We teach the patients to do it themselves. (d) The pain may be due to the retention of food in the stomach. This is a common cause of gastric pain. A person eats an ordinary meal; part of the meal is digested and part is not, so that the next meal goes into a stomach, not empty, but into one which contains food from the preceding meal. After a time these patients vomit and with the vomiting comes relief of the pain. This relief is so marked that patients frequently make themselves vomit in order to get rid of their pain. If this retention of food continues for any considerable period, the stomach gradually becomes dilated.

2. *Nausea and vomiting*, where these resist the ordinary drugs. (a) There is a class of patients who have attacks of vomiting at intervals, it may be, of three or four months. They will then vomit for two or

three weeks at a time. Some days they vomit five or six times; other days not so much. The general condition of these patients is so good that it seems to exclude any serious disease of the stomach. These cases are exceedingly troublesome, owing to the extreme irritability of the stomach. It is in this class of patients that we meet with the so-called "vomit habit." During these attacks the stomach will not tolerate the smallest quantity of fluid. The treatment is by lavage, but it may be weeks or even one or two months before we will get a day when the stomach will tolerate the presence of fluids. This condition seems to be associated in some way with neurasthenia, and is met with in both men and women. The treatment is tedious, but after a time they recover permanently. In women it is always advisable to have the tubes and ovaries examined, as it is not to be forgotten that hysteria, ovarian, or tubal disease, constipation, and anemia may be frequent causes of nausea and vomiting, without there being any disease of the stomach at all.

3. *Waterbrash*, with canker sores (herpes iris) in the mouth, and burning in the mouth and throat and esophagus.

4. *Sick headaches*, with vomiting and vomiting of bile. These patients usually suffer in addition from constipation and functional disturbances of the liver, so that in addition to the lavage it is necessary to exhibit laxatives and cholagogues.

5. *Belching of wind*. These cases usually need laxatives as well as lavage.

6. *Dilatation of the stomach*—that is, not temporary, but permanent dilatation. This is determined by pouring fluid into the stomach and measuring its capacity. Percussion and palpation are less satisfactory. In dilatation food remains in the stomach for more than twenty-four hours, sometimes for four or five days. Test articles are spinach leaves or the dried skins of fruits. These articles will remain in the



stomach unchanged, when the stomach is dilated, for four or five days.

If the dilatation is due to stenosis of the pylorus, the improvement under lavage is very marked indeed, and the patients remain well for months or a year, but after that they fail rapidly. If the dilatation is not due to stenosis, then patients can improve and remain well. In this way by the effects of treatment we determine the presence or absence of stenosis of the pylorus.

7. *Where there is no disease of the stomach*, but where patients have lost flesh and strength, through either phthisis, Bright's disease, or hysteria. Here the tube is used for the additional purpose of feeding. We wash out the stomach with 2 quarts of warm water and then introduce food into the stomach through the tube. For this purpose we use various articles. Cream is used most commonly and the ordinary quantity to introduce at a time is half a pint.

In the same way we may use one of the preparations of malt with cod-liver oil diluted with milk ( $\frac{1}{2}$  to 1 oz. of malt to a tumbler of milk), or we may use one of the preparations of beef, such as the peptonoids, diluted with water.

Contraindications to the use of the tube: (a) Advanced cardiac disease; (b) Chronic endarteritis in those advanced in years; (c) Any disease of the throat sufficiently advanced to obstruct the air-passages and interfere with respiration.

Pregnancy is ordinarily a contraindication, but in the vomiting of this condition lavage frequently gives very marked relief.

Most authorities condemn the use of the stomach tube in gastric ulcer and carcinoma, yet, according to Delafield, in carcinoma of the stomach the patients can often be made much more comfortable and even enabled to eat ordinary meals by the daily washing out of the stomach, and in gastric ulcer its exhibition is often attended with marked benefit.

Case I.—Female, aged twenty-two; single; family history negative. Had been sick one year, received treatment at various institutions, and been seen by competent observers. There was a history of stomach trouble, nausea, vomiting, constipation, and hematemesis. The girl was much emaciated and anemic, and getting gradually worse. She was admitted to the hospital in Feb-

ruary, 1895. The pulse was 120 and of poor tone. Temperature, 98.6° F. Examination of lungs and heart negative; bowels constipated. A diagnosis of gastric ulcer was made.

Two days after admission patient vomited a large quantity of blood, filling an ordinary basin. This so prostrated her that she was not able to sit up in bed for four weeks. The pulse rose to 160, and remained high and threatening for two weeks. Hypodermic injections of strychnine were given at short intervals, and the patient fed on cracked ice. The hematemesis was repeated again in six weeks, and a third time two months later. During this time the patient was seen by several physicians, and various plans of treatment were tried. Nothing seemed to be of any avail; the stomach, never tolerant, got less and less so and finally refused even liquids in small quantities.

Rectal feeding was tried for a time, but this it was found impossible to continue. All this time the patient was getting weaker and failing in every way. It was evident that something needed to be done at once or the patient would die. Finally, five months from the time of admission the patient's stomach was washed out for the first time. Lavage was continued daily. On the second day the lavage was followed with 1 oz. of scraped beef on a thin slice of toast; this was retained, and milk was given the rest of the twenty-four hours. Later, the diet was enlarged. At the end of three weeks the patient was able to leave her bed, and in six months was able to return to her home in France.

Case II.—Female, aged seventeen; single. Her mother died of phthisis. She was admitted to the hospital on March 25, 1895. Patient was always well until two weeks before admission; then she noticed that there was pain after eating. The pain came on a half hour after eating and lasted about an hour. She vomited frequently, which relieved the pain. There was constipation and headache, and loss of appetite.

Examination of lungs and heart gave negative results. Three weeks after admission, patient vomited a moderate quantity of blood. Vomiting was irregular; some days she would vomit once or twice, other days six or seven times, and some days not at all. This vomiting seemed to be independent of the kind of food taken. A diagnosis of gastric ulcer was made, and effort made to improve the case by regulated diet and drugs. Stomach feeding was finally abandoned and rectal feeding commenced. The patient continued to fail steadily and in the latter days was unable to leave her bed.

Lavage was commenced, the stomach being washed out daily. At first one solid meal a day was given and milk the rest of the twenty-four hours. In three weeks the patient was able to leave her bed, and was gaining weight and improving in every way. For the next two months the gain in flesh and strength continued, and three months later the patient was discharged well.

From time to time we meet with chronic catarrhal inflammations confined to the pyloric end of the stomach. The following history is characteristic:

Case III.—Female, aged twenty-three; married. Has one child four years old. Admitted to the hospital on October 7, 1895. Her father died of cirrhosis of the liver. Her mother was subject to bilious sick headaches. Patient had been subject to sick headaches for fourteen years. These attacks came about once in two weeks. For the last four years she has had trouble with her stomach, nausea, and distress. There is an aching between the shoulders. She is always constipated. For the last year she has been jaundiced. There is a bitter taste in the mouth mornings, and constant dizziness. For the past month she has been getting worse: the nausea, flatulence, eructations of gas, waterbrash, and distress have increased. She often forces herself to vomit on account of the distress in the stomach, as vomiting relieves her.

Such a history means that she began with a chronic inflammation of the pyloric end of the stomach, that this extended to the duodenum, causing jaundice, and that lately the inflammation has extended upwards.

These cases of chronic gastritis, with jaundice, confined to the pyloric end of the stomach, are the cases likely to be benefited by lavage. They do best with drugs which increase the production of bile. For this purpose we use castor oil, podophyllin, ipecac, and rhubarb, either singly or in various combinations. If there is no improvement in a week we resort to lavage. In one way or another they get well. When they get well the point is to keep them well, and for this purpose the best drug seems to be one of the preparations of soda, the bicarbonate, the phosphate, or the sulphocarbonate, given in 10- to 20-grn. doses, largely diluted in milk or water, three times a day before meals. This is continued for one or two months.

*Materials and Technique.*—A good stomach-tube should be smooth and flexible, in size between No. 17 and 19 of the American scale, closed at the end, with two openings on the side and as soft as will enable it to be passed. A rough tube irritates and inflames the pharynx. A hard tube is liable to injure. A tube that is unnecessarily large adds to the distress and discomfort of the patient. The tube should be pro-

vided with a hard rubber funnel holding about  $\frac{1}{2}$  pint.

The patient sits upright, the mouth open just wide enough to get the tube in and the tongue resting against the front teeth of the lower jaw. In passing the tube the impulse of the patient is to throw the head back. This should be corrected and the head inclined a little forward. The tube is to be lubricated with simple warm water. No vaselin or glycerin or oil is to be used.

In passing the tube we notice two possible points of constriction: (a) Union of the pharynx and esophagus. If it closes tight we ask the patient to swallow *once*, and as they swallow we push the tube on. (b) Esophageal opening of the stomach. This is rarely met with. If constriction at this point does take place pour water into the funnel and hold the tube quiet, in the meantime talking to the patient and diverting his attention. After a while the tube will be found to pass in.

When once the tube is started, it should be passed on gently and continuously until 18 or 20 inches have been introduced. This distance is usually indicated on the tube by a black line.

Complications are sometimes met with after the tube is introduced. Some patients give us no trouble, but others gag and work at the tube, and the more they work at it, the more mucus they collect in the mouth and throat, and this chokes them and adds very greatly to our difficulties. The treatment is to encourage and reassure them constantly; tell them to leave it alone, and incline the head forward so that the mucus may run out.

In other patients we find the stomach so irritable that the moment we attempt to introduce fluids the stomach rebels and throws them off. In this case it is necessary to desist at once and wait until the next day. It may take several days to allay the excessive irritability of the stomach and get it accustomed to the presence of fluid. Sometimes a difficulty will be experienced in getting the fluid out of the stomach. This means that the tube is either plugged or that the end is out of the water. The remedy is to clean the tube by pouring the

water in from a height or in pushing the tube in until it gets into the stomach. Or it may be that the tube is introduced too far into the stomach and is bent upon itself. The remedy in this case is, clearly, to withdraw the tube a little.

For an ordinary washing, the material used is warm water; the quantity 2 quarts; and the time, one hour before the principal meal.

We use a hard-rubber funnel, holding about  $\frac{1}{2}$  pint, and the rule is to fill it twice, and then as the water disappears from view the second time we lower the funnel to a point below the stomach; siphonage is thus established and the water runs out. This is done four times, introducing a pint of water into the stomach each time.

Much harm may be done by using too much water or water that is too hot. The washing is to be done at the same hour each day. Unless this can be done the result of the treatment will be disappointing. No alarm need be felt if it is found, at any time, that all the fluid cannot be removed from the stomach.

For many cases nothing will be required but warm water, but in other cases there seems to be an advantage in adding medicaments to the washing. For this purpose a variety of articles are employed, each being selected with regard to the conditions present. In this way we may use sodium sulphocarbolate, 1 oz. being added to 2 quarts of water; or 4 dr. of Carlsbad salts, or 1 oz. of glycerin, or  $1\frac{1}{2}$  dr. of tincture of nux vomica, or 4 dr. of boric acid, or 1 oz. of pyrozone—to 4 pints of water. Two drams of resorcin to 4 pints of water is also used, but this sometimes produces nausea and diarrhea.

In the same way we may use sodium bicarbonate in acid conditions of the stomach, dilute hydrochloric acid where there is a deficient production of gastric juice, and tincture of myrrh in atonic conditions.

For the relief of pain we use bismuth subnitrate, 5 dr. being added to the last pint of water introduced, and the fluid being allowed to remain in the stomach for a few minutes, that the bismuth may be deposited upon the sensitive mucous membrane. It

is not to be forgotten that dissolved substances are absorbed by the stomach much more rapidly than water, and some care is needed, therefore, that the quantity of medicaments, already specified, be not much exceeded. Resorcin is especially irritating, and a 1 per cent. solution is full strength.

There are no hard and fast rules for the selection of these medicaments. Practically, we begin with warm water and see how the case progresses. If at the end of a week the warm water alone seems insufficient, we add one or the other of the medicaments mentioned as may seem best indicated. Tincture of nux vomica, recommended by Dr. Delafield of New York, in the proportion of  $1\frac{1}{2}$  dr. to 2 quarts of water, makes a very satisfactory washing.

Of course the stomach-tube should be kept clean. A dirty stomach-tube doesn't do any more good than a dirty catheter. Chronic catarrhal gastritis is the condition most frequently met with, calling for the use of the stomach-tube. As the use of the stomach-tube is but one part of the treatment in such cases, their general management may be stated with advantage.

The patients are given a test breakfast consisting of a soft-boiled egg, a slice of bread and butter, and a cup of coffee made with milk. Three hours and a half afterwards we wash out the stomach and note the amount of mucus in the washing and the way in which the food has been disposed of. If gastric digestion is well performed, there should be no food in the stomach. Lavage is then to be done daily one hour before the principal meal, using 2 quarts of warm water to the washing. This is to be followed by a meal of meat, bread and butter, and a glass of water. At first, the patients get this one solid meal a day and milk during the rest of the twenty-four hours, and we wash with plain warm water, watching for improvement in the washings. At the end of the first week there may seem to be an advantage in adding some medicament to the water— $1\frac{1}{2}$  dr. tincture of nux vomica; 1 oz. of sodium sulphocarbolate, or 4 dr. of boric acid. After a time the patients begin to improve, the appetite returns, the nausea, vomiting,



and pain lessen and lessen, and patients begin to pick up generally. Now we begin to enlarge the diet. We allow a cup of coffee in place of the milk for breakfast, later a soft-boiled egg is added, then two soft-boiled eggs. After a time a baked potato is added to the midday meal, then fruit, and then another vegetable, and so little by little we work back to three ordinary meals a day, finally abandoning the afternoon milk. All this time, throughout the rest of the twenty-four hours, the patients get all the milk they desire, a tumblerful every three hours.

Throughout the treatment there is an advantage in having the bowels move every

day. At first lavage is done daily; this is continued for from two weeks to two or three months, then as improvement takes place we lengthen the intervals to every other day, then twice a week, and finally once a week. For two weeks the washing should be done by the physician, later we may intrust it to the patient himself.

From time to time it will be complained that the meat diet increases the pain and flatulency, but so long as it does not make them vomit we continue it. Improvement is not always rapid, and much tact and encouragement may be necessary for a time to induce the patient to continue the treatment until benefit is apparent.

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[Written for MERCK'S ARCHIVES]

## Iodized Starch as a Therapeutic Agent

By LEON L. SOLOMON, A.B., M.D.

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BRIEFLY stated, iodine induces waste, promotes absorption of morbid materials, and hastens elimination. In the consideration of the subject, iodized starch, it is, then, scarcely necessary to emphasize the therapeutic value of iodine per se, its wide range of application following, as a natural consequence, upon a well-understood pharmacodynamics.

The choice of iodized starch, however, over other iodine combinations is a matter that will require both argument and explanation, I am convinced, before the preparation can expect to win general favor. For so many years the profession has been taught to regard starch as the best antidote to free iodine, that it concludes (though it does not necessarily follow) that such a compound must be physiologically inactive. This is, however, far from the truth. Authorities on the subject are agreed that the iodine, in iodized starch, soon becomes active again under favorable circumstances, like those found in the gastro-intestinal canal. As Potter puts it, "starch is the antidote to free iodine, but the stomach must be evacuated, as the iodide of starch is *not* inactive."

The selection of any drug preparations for internal administration is always a matter involving consideration; but when, like iodine, the drug in question is intensely irritating, if not actually corrosive, then more than ordinary interest attaches to a given preparation. Among the several preparations of iodine most frequently employed for internal administration are included compound iodine solution, the iodides of potassium, sodium, strontium, ammonium, lithium, mercury, calcium, etc., tincture of iodine, iodoform, hydriodic acid, and organic iodine preparations, of which thyroid extract, cod-liver oil, and like substances are examples.

Because of the irritating properties, more or less, of all the iodine preparations, the writer some three years ago undertook an investigation of the physiological action and therapeutic application of iodized starch. For the first time a brief report of this study is ready for publication. But before outlining any details the statement will be made that iodized starch has been found to represent all the activity of other iodine preparations. Its exhibition affords iodine ready for prompt absorption, and causes no dis-

treassing local effects. The combination of iodine with starch is not new, even as a therapeutic agent. Some of the books have spoken of it. It has already been described as "a non-irritating iodine preparation in slight use." Under various names it has been known to several countries—iodure d'amidon, amyli iodidum, amyllum iodatum, viz., iodized starch. Amyllum iodatum seems more than likely the correct name, and the U. S. P. of 1880 adopted it, believing that a definite union of iodine with starch did not exist; therefore, the name of a true chemical substance, such as amyli iodidum—viz., iodide of starch—was not warranted. It is true, doubtful formulas  $(C_6H_{10}O_5)_5I$  and  $(C_6H_{10}O_5)_{10}I$  have been proposed, but, according to our present knowledge, we are only justified in accepting iodized starch as an unstable combination, in which iodine and starch exist in a state of feeble union. A temperature of  $100^\circ$  F. will decompose the preparation, in the presence of alkalis, setting iodine slowly free.

NOTE.—It is important to remember that both of these prerequisites of the liberation of free iodine from iodized starch—namely, heat and alkali—are present in the alimentary tract, and, also, that, through the conversion of the granulo-se (of starch) into sugar, by means of the action of ptyalin or steapsin (or artificially by diastase), free iodine is likewise liberated.

Under any of these circumstances the iodine is so slowly set free, in the intestine, that its conversion into an iodide or iodate of sodium, or into an albuminate of iodine, ready for immediate absorption into the blood, is assured. This is a point of prime importance, and must explain the prompt and energetic action of iodized starch.

*Preparation and Properties.*—Five parts of iodine are triturated in a small quantity of water, and ninety-five parts of starch slowly added and carefully rubbed until the mixture is regularly and uniformly a blue black. This is now to be slowly dried, at a temperature not higher than  $104^\circ$  F., and carefully rubbed until a fine, blue powder results. Prepared thus, we have approximately a 5-per-cent. iodized starch, which is insoluble in water, has the characteristic iodine taste—provided it be held in the mouth a few seconds—and a slight iodine

odor. It should be kept in glass-stoppered vials. Two-per-cent. strength is sometimes supplied. The U. S. P. of 1880 directs, in the preparation of iodized starch, that 24 grn. of iodine be mixed with 456 grn. of starch, with the aid of a little water.

*Uses.*—Wherever iodine is indicated, and where the iodides would ordinarily be employed, iodized starch may be exhibited; its action is prompt, and, in proper dose, energetic. Being an important article of food, starch makes an admirable diluent or menstruum, differing from other bases, like potassium, sodium, strontium, etc., which are each, to a greater or less extent, foreign to the human economy.

*Dose.*—The smaller doses— $\frac{1}{4}$  to  $\frac{1}{2}$  grn.—as recommended by some authorities, were found too small. As a rule, from 3 to 10 grn. in capsule, pill, powder, or tablet, were necessary to procure a desired effect. Where large doses of the iodides had been attempted, but on account of irritation could not be continued, comparative tests showed the necessity for equally large quantities of iodized starch, as much as 1 dr. to 2 dr., suspended in barley-water, being sometimes given. Even such heroic doses give rise to no distressing local effects on the stomach or bowel mucosa.

The advantages of iodized starch may be thus summarized: Physiologically it is an active preparation of iodine, for internal as well as for external use, free from the irritant and caustic action of most iodine products. It is not objectionable to any of the special senses, and its convenience for preparing and administering in capsule, tablet, etc., adds considerably to its virtues. It is sufficiently stable to be preserved almost indefinitely under precautions known to the apothecary.

NOTE.—It is well to prescribe only small numbers of the powders or tablets of starch iodized, and to order the latter prepared fresh each time; the druggist should dispense them in a box, lined with absorbent cotton.

There can be no doubting the absorbability of the iodine in iodized starch, but the iodide of potassium will be found a more active preparation. It is in the cases where the latter salt or where other iodides cannot

be tolerated that iodized starch becomes a valuable addition to our armamentarium.

Disinfectant and antiseptic properties are claimed for it internally, and when applied as a powder, locally, it is said to possess pro-

TECTIVE and slightly counter-irritant, as well as stimulating-alterative properties. Chronic ulcers are thus markedly benefited by the powder, and, mixed with wool-fat, a useful ointment is prepared for fissures, etc.

## Biniodide of Mercury in Diphtheria.

By J. WEICHSELBAUM, M.D., Savannah, Ga.

AT the meeting of the American Medical Association in New Orleans, May, 1885, Dr. R. J. Munn, of Savannah, Ga., read a paper on successful results of a new treatment for diphtheria. In *Gaillard's Medical Journal*, January, 1884, he had published a paper on the use of "Peroxide Hydrogen in Diphtheria," which was intended only to bring before the profession the value of that antiseptic as a local application in the disease. Although peroxide of hydrogen acts energetically and favorably when topically applied, dissolving soft membrane and disinfecting the part, it seems to be absolutely devoid of constitutional action, and has not the power to prevent the sequelæ of the disease in question. This is painfully and certainly demonstrated in the following case:

Patient was a young lady seventeen years of age, in whom there was a tendency to tonsillar and pharyngeal congestion. The attack of diphtheria was preceded by one of tonsillitis of a mild form. The first symptoms were nasal, and the first visible membrane was upon the left tonsil, which was entirely covered in twenty-four hours with a patch of membrane about three-fourths of an inch in diameter. At this time the patient could not breathe through the nose. The application of the peroxide was now commenced in earnest, the brush, spray, gargle, and douche being all called into requisition, so that the parts may be said to have been constantly bathed with the remedy, but no other medium was used in the treatment of the case. Within a week, patches of membrane, some of which were not less than 2 square inches in area, were detached from the vault of the pharynx. Every trace of deposit had disappeared, so the patient was discharged, and in a day or two she returned to her home in the country.

In the course of ten days her family and her physician wrote that she was attacked with a partial paralysis, which soon became general and total, with severe local pains, and in another

week she died, just seventeen days after the disappearance of the diphtheritic deposit.

From the history of this case it became evident that a constitutional antiseptic of considerable power should be used, which would prevent the development of the diphtheritic poison and preserve the nerve centers from its destructive influence. It was found that the most powerful antiseptic and germicide was biniodide of mercury, and that agent was, therefore, used in all future cases.

I have been using it in the following manner since the adoption of Dr. Munn's treatment:

I always give a mercurial purge in the beginning of the treatment, and as often as necessary thereafter:

Mercury Biniodide.....	1	grn.
Potassium Iodide.....	4	grn.
Water.....	1	dr.

Dissolve; then add:

Syrup Hydriodic Acid...to make 4 oz.

Five to ten drops on tongue every twenty minutes, day and night.

Hydrogen Peroxide.....	1	oz.
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Water.....	3	oz.
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Use through atomizer. If patient is old enough, let him gargle every half hour, day and night.

Quinine Sulphate.....	48	grn.
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Fl. Ext. Glycyrrhiza.....	1	oz.
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Cinnamon Water .....	to make	4	oz.
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Shake. Teaspoonful every two hours, day and night.

Normal Liq. Aconite (P. D. & Co.)	64	drops
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Glycerin.....	4	dr.
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Cinnamon Water.....	to make	4	oz.
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Shake. Teaspoonful every hour, day and night. When fever is absent, give every two hours.

Nourishment—milk-punch, soft-boiled eggs, beef and chicken broth, milk, white of egg in tumbler of water (used at pleasure).



I have not lost in fifteen years one case of diphtheria, and all ran their course without any sequelæ.

In treating diphtheria as above, it might be said there is nothing new in the treatment, as the remedies have all been used time and again. But have they been used constantly, as I have been using them? To this my success is to be attributed. I do not give the germs a chance to propagate. Waiting longer than twenty to thirty minutes with the biniodide will not do, as I found by waiting over that time that the membrane

would spread. I do not, of course, claim the above treatment to be a specific, but simply offer it and the manner of using the drugs for consideration.

In families where children have been exposed I give the biniodide mixture only, four times a day, and have never known of a case of diphtheria following this treatment.

Before adopting the above course I used the iron and potash treatment, with lime-water spray and gargle. Under these measures some cases recovered, with paralysis following; others died.

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## Treatment of Typhoid Fever

By ALEXANDER THOMSON, M.D., Adair, Mich.

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THE most potent means at the command of the physician in combating this disease is elimination. At the onset, if the disease is recognized early, much can be done to prevent a severe attack by free catharsis. A free dose of calomel will disinfect the bowel and remove the poisons that threaten to overwhelm the system. Typhoid patients bear calomel better than others. The early use of calomel or other cathartics will head off and prevent the diarrhea that often exhausts the patient. There is little danger of death by toxemia when cathartics are freely used. A good plan is to administer a cathartic every second day during the first few days of the disease, although no fixed rule can be followed, as deep ulceration in the bowel is a contra-indication to their use. Other cathartics besides calomel are useful, as rhubarb and cascara sagrada. Castor-oil is safe and valuable, but the patient and family know what is being taken—something that is often not desirable. Hare says that Rochelle salt is irritating. It has proved, from its tendency to produce hemorrhage, a dangerous cathartic in typhoid fever in my hands. Cathartics remove not only the bacillus itself, but also the ptomaines produced by it.

Another valuable means of elimination and disinfection is rectal injections of water. In the first stage they are safe and of great value. Some non-toxic antiseptic may be

dissolved in the water, *e. g.*, common salt. When the temperature is high the water may be used cold, and the patient instructed to retain it as long as possible. It being absorbed and excreted by some of the other organs of excretion, much of the soluble poison created by the disease is dissolved and carried out of the system. The drinking of large quantities of water is also a very necessary part of the treatment. By its evaporation from the body it lowers the temperature; by its flushing out of the kidneys, bowels, and other organs of excretion, it removes from the system the poisons that are weakening the heart and threatening to overwhelm the nervous system. The patient should be pressed to drink more than he wants—should have offered to him continually abundance of pure or sterilized water.

As a means of combating the fever, cold sponging takes the first place. The patient has no heart energy that should be wasted by the administration of depressing antipyretics. Bathtubs and running water are not found in every country home. When the temperature is high a thorough sponging with a mixture of cold water and alcohol will reduce the fever, produce refreshing sleep, and quiet the nervous system. Very cold water can be used for the head, face, and neck. The nurse may be instructed to sponge the head and neck first, then the

trunk, arms, and lower limbs. The sponge bath is a potent preventative of lung complications. By cold sponging the temperature can be held in check and delirium prevented. During the period of high temperature much will be gained by continuous cold applications to the head. The cold sponge bath acts as a stimulant to the whole nervous system, and through it to the heart and organs of respiration. The bath also adds greatly to the comfort of the patient, so much so that it is a common request to be allowed extra sponging. Following the sponge bath there is no exhaustion or depression, so often complained of after the full-tub bath.

The medical treatment is very simple—the simpler the better. As an intestinal antiseptic, salol ranks high. It is unusually well borne by the stomach. The kidneys are liable to suffer, and must be watched. After it is administered for a few days, the dose may with propriety be decreased. By the administration of salol the physician is enabled to flush the bowels with carboic acid. After the continuous administration of salol the production of gas is lessened, and the offensiveness of the stools diminished. There is consequently less bloating or tympanites, and less pain and distress in the abdomen. The drinking of large quantities of water makes the administration of salol safer.

If there be much diarrhea and tympanites, bismuth subnitrate may be added in free doses. Tannin is useful in cases of profuse diarrhea with much watery discharge. Turpentine internally and diluted with oil as an external application to the abdomen is useful, especially when there is much distension by gas. Changing the position of the patient leads to the evacuation of the gas and prevents distension. In case of hemorrhage from the bowel, it may become necessary to lock up the secretions temporarily; in which case free doses of opium, tannin, lead acetate, and bismuth will be found useful.

The heart must receive the constant attention of the physician. During the first days, when it is slow, steady, and the sounds normal, it is better to leave it alone and re-

serve heart tonics for later emergencies. Typhoid fever is a slow-pulse fever, and when the heart becomes rapid look out for complications. Strychnine is an ideal remedy in this disease. It being a nerve tonic and stimulant, by its action on the center of respiration it produces deep breathing and prevents lung complication. It is without a superior as a heart tonic as well.

Great care should be exercised by the nurses in keeping the bed and patient clean, more especially in those cases in which there are involuntary evacuations. In one case seen by the writer some time ago local infection took place, causing large numbers of superficial abscesses.

### The Treatment of Pulmonary Tuberculosis

DR. SCHOULL,<sup>1</sup> physician to the French hospital in Tunis, states that, unfortunately, the idea prevalent in many quarters that Tunis is free from consumption is entirely erroneous. The population pays heavy tribute to it here as anywhere else, as can be seen from the following: The number of deaths in the French hospital from "medical" diseases amounted in seven months to 120; of this number, 48 were due to pulmonary tuberculosis!

In both his hospital and private practice the author employed various drugs to find out their relative value in pulmonary tuberculosis. Eleven patients were treated with sodium metavanadate. The commencing daily dose was  $\frac{1}{120}$  grn., gradually increased to  $\frac{1}{60}$  grn. Some of the patients took it every alternate week, others every alternate day. Of the eleven cases, two had cavities, four presented signs of softening, two had dry râles, and three showed signs of apical involvement. At the end of two months of treatment the last three showed some real improvement; the two patients with the cavities were dead; in four others there was a general improvement; but in no case could any appreciable local improvement be noticed; the tubercle bacilli remained in all cases in the same abundance. It is necessary to add that in all the above cases, as in

<sup>1</sup> *Jour. des Praticiens*, 1900, p. 537.

all cases to be mentioned below, general treatment was employed in addition to the "specific" drug. The general constitutional treatment consisted in fresh air, rest, abundant nutritious food, tonics—such as cinchona, kola, glycerophosphates, cod-liver oil, when it was well borne—and the application of the actual cautery, as a revulsive, every eight or fifteen days.

Sodium cinnamate was tried in five patients during the period of one month, but as no favorable influence whatsoever could be noticed, the treatment was suspended.

Sodium cacodylate gave very good results. It was employed either in the form of pills or as a hypodermic and intramuscular injection. The injections seemed to be preferable. The dose injected varied from  $\frac{3}{4}$  to  $1\frac{1}{2}$  grn. per day, and was used every day for a week, omitting it the following week, or using the injection ten days out of every twenty. Fourteen patients were treated with the cacodylate; three were in the first stage, eight in the second, exhibiting dry and moist râles, and three had cavities. No appreciable result noticed in the last three cases. In two patients the treatment had to be suspended on account of intolerance (headache, nausea, vomiting). In one case, a woman in the second stage, genuine intoxication took place. The first injection of  $\frac{3}{4}$  grn. produced in a few hours severe pain in the bowels, profuse diarrhea, nausea, vomiting, profuse sweats, weariness in the limbs, with dark-brown, turbid urine. All toxic manifestations disappeared gradually and spontaneously. The cacodylate was resumed in a week in small doses in pilular form, but the same symptoms of intoxication made their appearance. The treatment had to be suspended definitely. As the author says, this was a case of true idiosyncrasy. Of the remaining eight patients, six were benefited by the treatment—fever, sweats, cough, expectoration, and the number of bacilli diminished; there was an increase in the appetite, strength, and weight. Of the three patients in the primary stage, two seemed to be cured at the end of two months' treatment.

Only one other agent gave the author as favorable results as the sodium cacodylate,

and that was thiocol (and it was free from the toxic symptoms induced by the cacodylate in some patients). The thiocol (a derivative of guaiacol—potassium guaiacolsulphonate) was administered to seven patients. Two were in the first stage and five in the second; of the latter class, two had dry râles and three showed signs of softening. The condition of all the patients improved, both as regards the local and the general condition. The thiocol was given in doses of 8 grn. three times a day, with the meals. Seeing the efficacy of the thiocol and cacodylate, when used separately, the author thought it would be a good idea to combine them and use them conjointly in the treatment of tuberculosis, and it soon became apparent that the results were superior to those obtained with each medicament separately.

The treatment was as follows: During the first ten of every twenty days an injection of  $\frac{3}{4}$  grn. of cacodylate was given every morning; in some cases the injection was repeated in the evening. During the same ten days and for five days following thiocol was given with each meal, in doses of 8 to 15 grn.; during the remaining five days (out of each twenty) all treatment was suspended; then the combined treatment was resumed. Of eight patients treated in this manner, two, with cavities, seem not to have improved; four cases, three of which were in the stage of softening, improved considerably in every respect; finally, two, of whom the author gives a detailed history, seem to have been absolutely cured.

The author states that he uses the word "seem" because—while it is true that those two patients present no morbid symptoms whatsoever, and the bacilli which were very abundant in both have completely disappeared—it cannot be affirmed absolutely that we are not dealing with one of those periods of truce which tuberculosis occasionally grants us. However, the results in these cases have been remarkable.

The histories of the two cases are so interesting that we report them in full:

The first patient, a young woman of twenty-four, consulted the author for a "bronchitis," of which she could not get rid. Questioning showed



that there was tuberculosis in the family. She herself had always been of a nervous disposition, caught cold easily, and had several attacks of hemoptysis. On the neck could be seen cicatrices of old suppurating cervical glands; she was profoundly anemic, emaciated, hoarse, coughed frequently; had no appetite; bowels out of order, with attacks of diarrhea; fever in the evening and night-sweats. Percussion showed dullness at both apices; auscultation revealed signs of induration on one side and dry râles on the other. Bacteriological examination showed the presence of a few tubercle bacilli. Treatment was instituted with creosote, iodoform, sodium arsenate, cod-liver oil and tonics; general hygiene was observed rigorously. At the end of a month the patient's condition became worse in every respect; in the right apex moist râles could be heard, and the expectoration, now more abundant and muco-purulent, contained numerous bacilli. She was then treated with sodium metavanadate for a period of six weeks. No favorable result of any kind was noticed; the patient's condition was getting worse and worse. Sodium cacodylate was then tried, and it seemed to give good results in the beginning; but after a while the tubercular process advanced with rapid strides. The bacilli became very abundant, the emaciation was extreme, great weakness, hectic fever, etc. Everybody, including the author, considered the patient irretrievably lost. It was then that the author conceived the idea of associating the sodium cacodylate with thiocol. The former was injected in the morning; 30 grn. of thiocol were given in four powders during the day. At the end of two weeks a slight improvement could be noticed. The appetite returned, the fever and the night-sweats diminished, the diarrhea stopped. At the end of six weeks a favorable change occurred in the local process—the dry râles had disappeared in the left apex, the moist râles were less numerous in the right apex, and the number of bacilli had diminished. The improvement in the general condition was regular and progressive. Four months after the institution of the cacodylate-thiocol treatment the patient had gained several pounds, gained color and strength, had no cough, fever, sweats or diarrhea; and on repeated analyses there were absolutely no bacilli in the expectoration and no râles.

The second patient, a brother-in-law of the first, and a surveyor in the government service, thirty-two years old, had previously an attack of pleurisy, coughed often, and had night-sweats. One day he had to be out many hours in the rain, and, having no change of clothes when arriving at his destination, he caught a severe cold, followed by an attack of broncho-pneumonia. On recovering he showed acute symptoms, which made the author fear galloping consumption; these symptoms disappeared in about two weeks,

and there were only to be observed dry râles on the right apex and rough and irregular breathing on the left; the bacilli in the sputum were quite numerous. The treatment with cacodylate and thiocol was instituted, and in two months the patient's sputum contained no bacilli, and all morbid signs and symptoms had disappeared. When seen the last time the patient seemed absolutely cured.

The author concludes by saying that in the combination of sodium cacodylate and thiocol we possess a treatment for pulmonary tuberculosis superior to any other.

### Treatment of Cancer of the Stomach

THE medical treatment of cancer of the stomach is ably and clearly discussed by Dr. Boardman Reed.<sup>1</sup> The author says that the task before the physician is:

(1) To relieve the accompanying asthenic gastric catarrh and the symptoms dependent upon it, including largely the nausea and vomiting, the failure of the secretion of hydrochloric acid, and of the ferments, and in part the lowered nutrition.

(2) To combat the decreasing gastric motility as well as the anemia, debility, and emaciation.

(3) To control hematemesis.

(4) To assuage the pain, secure sleep, and make the patient as comfortable as possible.

All these objects may be promoted to a considerable extent by a suitable diet, and the indications here are not wholly the same as in ordinary chronic gastric catarrh of asthenic type, except when this is complicated by failing motor power of the stomach. The weakened motility or propulsive power is always a conspicuous feature of advanced gastric carcinoma, and this calls imperatively for small and relatively frequent feedings with the blandest and most easily digestible nourishment. In probably a large majority of cases, good fresh milk in some of its forms or preparations will agree best, and will need to be prominent among the nutrients depended upon. Usually, plain, sterilized or boiled milk, with  $\frac{1}{2}$  to  $\frac{1}{4}$  part lime-water, according to the degree of irri-

<sup>1</sup>*Internat. Med. Magazine*, 1900, p. 575.

tability, is as suitable as any form, if digestives are given after the meals, but sometimes it agrees much better when predigested or peptonized. Other excellent foods for aggravated cases are the whites of eggs beaten up in water, well-cooked gruels (peptonized or not, as found necessary), whey, koumyss, gelatin, the juice pressed out of lightly broiled steak, and vegetable purées. Any of the liquid foods may be thickened by the addition of beef powder. The various proprietary foods, both the albuminous and non-albuminous kinds, will often suit well, and will help to afford variety in the worst cases especially. In the earlier stages, and in those cases with less irritability and more digestive power, stale bread or toast and butter, crackers, fish, oysters, hashed lean meat, soft-boiled or poached eggs, thoroughly cooked cereals (the finer kinds), with milk or cream, and even the blander vegetables, in which the starch has been well dextrinized by cooking, may be allowed; but all these should be finely divided before eaten. As to beverages, the previous habits of the patient will often decide. The lighter wines in small quantities may add slightly to the nutrition, and tea and coffee, unless they specially disturb the stomach, should not be denied to patients who have been accustomed to them, though they should be taken without sugar whenever fermentation is very troublesome. The richer chocolates will almost certainly disagree, and often the choicest cocoa, though these are all highly nourishing. An infusion of cocoa-shells is more suitable, and there is no objection to the cereal coffees sweetened with saccharin. Sugar, being the most fermentable of all foods, should generally be avoided.

As the disease advances and the ability of the stomach to empty itself lessens more and more, the amount of the liquids taken by the mouth will have to be diminished, especially the amount taken at a time. It will seldom be well to allow more than half a pint of liquid at any one time in this way, and much less in far advanced cases. Toward the last the demand of the system for liquids may have to be met in part by injecting water into the bowels, and the feeding in the later

stages may be supplemented by nutrient enemata.

(1) For the gastric catarrh, lavage is the most important of all the mechanical forms of treatment, and in the cases with pyloric obstruction, with retention and dilatation, it is indispensable. It will do more usually to relieve the nausea and vomiting and to lessen most of the symptoms resulting from the gastritis than any other of our therapeutic resources.

Condurango, a drug largely used in Germany and to some degree by American physicians in cancer of the stomach, is believed now to be helpful, mainly because of the good effect it has upon the accompanying gastritis, though Ewald thinks that this "improvement of the concomitant catarrh of the mucous membrane may lessen the hyperemia and the size of the tumor." At all events, there is much testimony from many sources to the effect that the symptoms may all lessen in severity, the appetite increase, and life often be somewhat prolonged as a result of persevering with a course of condurango. This may be given in the form of the fluid extract in doses of a dram or more three times a day, or, as preferred by Ewald, in a decoction to which he advises the addition of appropriate doses of HCl and some carminative. Boas, Riegel, and most German writers also speak well of this remedy, while admitting that in bad cases it often fails to effect even temporary improvement.

(2) To combat these asthenic conditions, in addition to the remedies and measures already mentioned as helpful for the gastric catarrh, including especially lavage with cleansing and antiseptic solutions to lessen the autointoxication, it is necessary to overcome any existing constipation with, preferably, douches of the colon, since they do not irritate the stomach, while they supply needed water to the body—though moderate doses of mild laxatives, when they prove effective, may answer, and are less troublesome and fatiguing. Diarrhea needs a more careful diet, antiseptic colon douches, and, sometimes, astringents with opium. Iron, arsenic, and strychnine, when well tolerated, may be administered to enrich the

blood, stimulate appetite, etc., preferably in small and often repeated doses to avoid irritation; but frequently they will do most good with least harm when given in suppositories. In cancer, obstructing the pylorus, nothing will have more effect in staying the progressive dilatation of the stomach than lavage, and a careful regulation of the diet as above advised, but strychnine hypodermically may sometimes do something temporarily. Intra-gastric electricity, which in simple atonic dilatation is our most powerful weapon, is ineffective and even harmful here. HCl and pepsin, or some preparation of papaya (papain), may help the patient to digest more food.

(3) To control the hematemesis. This is usually much less serious in cancer than in ulcer of the stomach, and may be often avoided merely by enforcing the diet above outlined. When it occurs, the patient must be kept at rest, recumbent, all food by the mouth stopped, and the patient made to swallow frequently small pieces of ice. From 20- to 30-grn. doses of bismuth, in a mixture with lime-water and a little essence of peppermint, may next be tried, and these are very effective also in vomiting and diarrhea. The stronger astringents, as ergot, gallic acid, etc., should be reserved for stubborn cases. Extract of the suprarenal glands has been lately suggested as a safe and promising remedy. From 3 to 5 grn. of the dried extract may be given several times a day. Locally applied, this remedy has a greater astringent power than any other known.

(4) External applications will sometimes relieve the pain of gastric cancer. Mustard, painting with iodine, liniments, and hot wet-packs are the most easily applied, and will sometimes suffice. Among the milder internal sedatives chloral and cannabis indica are frequently effective in allaying the pain and procuring increased sleep, and the former has useful antiseptic as well as sedative virtues. Condurango is believed by various authors also to ameliorate the pain along with most of the symptoms. Boas praises potassium iodide, especially in carcinoma of the cardia, and arsenic is thought to help often in malignant growths anywhere.

Methylene blue (medicinal) is beginning to obtain a reputation on account of some supposed sedative properties in gastric cancer. Most recent authors concede to it considerable efficacy. It is to be given in doses of 3 to 5 grn., in a capsule daily, and Van Valzah and Nisbet advise that a little powdered nutmeg be added to it "to correct its slightly irritant action on the urinary tract." Marcus Fay recommends aniline sulphate, holding that it delays metastasis and cachexia, and relieves the pain better than opium. But sooner or later, in all cases, opiates will become necessary. They can be given in any of the usual ways, but will be most effective hypodermically. Codeine should be preferred so long as it continues to prove efficient, but at all hazards the patient should be made comfortable.

In a series of seventeen cases of inoperable carcinoma, including two of the stomach, Bra, of Paris, and Mongour, of Bordeaux, reported lately (*Med. Rev. of Rev.*, April 25, 1900) some remarkably favorable palliative results from injecting a purified culture of the nectria ditissima, a parasitic growth found on trees and considered a kind of vegetable cancer. They injected daily 4 Cc. of this culture extract, and while in none of the cases was any noticeable control exerted over the progressive emaciation and cachexia, there resulted uniformly a cessation of hemorrhage and of the fetid discharges in one facial, as well as in the fourteen uterine cancers, while the pain was markedly soothed even in patients who had previously been unable to obtain relief from morphine hypodermically. When the injections of the nectrianine were stopped, the troublesome symptoms all reappeared, only to respond again to the same treatment when resumed. Bra and Mongour did not feel justified in deferring operative intervention in order to test their new method in early operable cases, but it would seem to be one worthy of a further trial on a larger scale.

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VOMITING IN PREGNANCY.—Menthol,  $\frac{1}{4}$  grn.; codeine,  $\frac{1}{4}$  grn.; bismuth subnitrate, 10 grn.; cerium oxalate, 3 grn.; sodium bicarbonate, 3 grn. (for one powder. Take one three times a day).—ROBINSON.



## Palatable Prescribing for Children

THE prescribing of medicines for children in as palatable a form as possible is of the utmost importance—of much more importance than it is generally considered by the average practitioner. Very often failure to prescribe in a palatable form defeats completely the objects of the prescription: the child obstinately refuses to take the medicine, is liable to vomit it after administering it, or the struggle of the child reacts so injuriously as to more than counterbalance any benefit that may possibly be derived from the medicine. It is an open secret that there are many families which employ regular physicians for their adult members, while the young children are intrusted to the care of homeopaths. Why? Because there is never any trouble with the children's taking the homeopathic pellets, or "little candies."

Any attempt, therefore, to enlighten the profession on the subject of palatable prescribing for children is to be warmly welcomed. Dr. H. B. Sheffield<sup>1</sup> has written an article with the above object in view, which we abstract in detail:

**Digestants.**—Most of the digestants are tasteless, and can be made palatable by the addition of powdered sugar or by dissolving them in wine or a simple elixir.

**Bitter Tonics.**—The simple bitters are very bitter indeed. Excepting *nux vomica*, they are of little utility and ought better be left alone. *Prunus Virginiana* is very pleasant in taste and one of the best members of the aromatic bitters. The cinchona preparations, the chief representatives of the peculiar bitters, can hardly ever be made palatable, and ought never to be used in children, unless intended as an antimalarial. In the latter case, quinine is best administered by rectum in the manner suggested by the writer, namely:  $\frac{1}{2}$  dr. of quinine sulphate or bisulphate with a few grains of salt are mixed with the white of an egg, and by means of a glass syringe forcibly injected into the bowels. In a child four years old this can be repeated three times a day. The white of the egg prevents irritation of the

rectum, and, together with the salt, aids in the absorption of the quinine. Large doses can in this way be administered without any unpleasant effects. Children who take medicines readily will find euquinine—perfected, almost tasteless, quinine—quite a palatable preparation. It may be prescribed in simple syrup, or peppermint-oil sugar (*oleo-saccharum menthæ*), and has further advantages over quinine in being less apt to produce nausea and tinnitus. Grown-up children can usually be induced to take the following mixture:

Quinine Sulphate.....	$\frac{1}{2}$ dr.
Dil. Sulphuric Acid..	} of each, 30 drops
Essence Peppermint..	
Comp. Syr. Yerba Santa, to make	3 oz.

Two teaspoonfuls every three hours.

*Iron* may be prescribed in the following combinations:

Bitter Wine Iron.....	} of each, 1 oz.
Elixir Orange.....	
Iron and Ammonium Citrate...	16 grn.
Brandy.....	$\frac{1}{2}$ oz.
Essence Pepsin.....	1 oz.
Simple Syrup.....	to make 2 oz.
Tinct. Ferric Chloride.....	1 dr.
Glycerin.....	4 dr.
Syrup Ginger or Orange Flowers	1 oz.
Water.....	to make 2 oz.

**Alteratives.**—Arsenic, the iodides, and mercurials are the leading remedies of this group. Fowler's solution is palatable, however it may be exhibited. Among the iodides, syrup of ferrous iodide, with a little glycerin, is an excellent preparation for children. Potassium or sodium iodide may be prescribed in water and compound tincture of cardamom, tincture of orange, or compound syrup of sarsaparilla.

[NOTE.—On this point we cannot agree with the author. Syrup of ferrous iodide cannot be made palatable, no matter with what vehicle it be mixed. Children have a strong aversion towards it, nor can the alkaline iodides be made "palatable" by the vehicles recommended by the author. The best vehicle for the iodides will still be found in milk. The alkaline iodides can very advantageously be replaced by iodipin, which is an addition product of iodine and sesame oil. Children take it without the least objection, as they do not mind an oily taste as much as adults do. In numerous cases where the alkaline iodides

<sup>1</sup>Med. Times and Register, Nov., 1900.

could neither be taken nor borne by the stomach, iodipin was taken and retained well, producing no gastric disturbance whatever.—Ed.]

Corrosive sublimate can be diluted in the same manner. Calomel, the pediatricist's panacea, is well taken by children, if triturated with a pinch of sugar. Cod-liver oil is invaluable in the treatment of sick children, but it is, unfortunately, almost impossible to disguise its repulsive taste. The various mercantile malt and hypophosphite compounds are more acceptable than the pure oil, but who can vouch for their supposed strength?

The following formula may be tried by mouth:

Cod-liver Oil.....	4	oz.
Extract Malt.....	1	oz.
Syrup Calcium Hypophosphite..	1	oz.
Glycerin .....	4	dr.
Powdered Acacia.....	4	dr.
Cinnamon Water.....to make	8	oz.

*Antipyretics.*—To relieve pain and reduce temperature, the coal-tar products in small doses can safely be resorted to. Acetanilid (antifebrin) is almost tasteless, and with a little sugar containing a drop of oil of peppermint or wintergreen, very palatable indeed. There is really no need for hunting up more tasteful proprietary products instead. If properly administered it is certainly as safe and by far less expensive than any of them. Antipyrine and the salicylates are best exhibited in a little glycerin and peppermint or orange-flower water. The following mixture is very serviceable in acute articular rheumatism of children:

Sodium Benzoate.....	} of each,	1½ dr.
Sodium Salicylate....		
Tinct. Orange.....	4	dr.
Distilled Water.....to make	2	oz.

Salol and salicylic acid are best prescribed in powder, with the addition of a minute quantity of oil of wintergreen, just enough to impart its taste.

*Hypnotics.*—The selection of tasteful hypnotics is rather difficult. The author prefers the deodorized tincture of opium to all other opium preparations, as it is very efficient in but very small quantities, and can, therefore, be readily disguised in any elixir or syrup; e. g., syrup of ginger, syrup of raspberry. In prescribing codeine in a

fluid, a little gum arabic should occasionally be added to avoid the formation of a sediment. In excessive irritability of the stomach, opium as well as bromide and chloral may be administered by rectum. The latter two preparations are usually well taken by children in elixir of orange or glycerin and bitter almond, cinnamon, peppermint, or anise water. Syrup of lactucarium may be added to the former in treating infantile convulsions. Dormiol (amylene-chloral, Kalle) may be prescribed in a palatable syrup or in glycerin:

Dormiol (50 per cent.).....	1½	dr.
Glycerin .....	4	dr.
Water.....to make	2	oz.

*Anodynes and Antispasmodics.*—Belladonna is the principal drug of this group. The fluid extract should be prescribed in preference to the tincture. Syrup of almonds or of wild cherry, with a little water, is, among many others, an excellent vehicle for it. Camphor holds on to its miserable taste no matter what is done. Powdered chocolate disguises it somewhat. Emulsion of chloroform and compound spirit of ether are excellent antispasmodics and need but little dilution.

*Stimulants.*—Nux vomica, strychnine, ammonia, alcohols, strophanthus, caffeine, and digitalis are all indispensable drugs in children's practice, and fortunately can be made palatable in any of the usual adjuvants. The extracts and alkaloids should be preferred to tinctures or infusions. As quick circulatory and respiratory stimulants the ammonia preparations, such as aromatic spirits of ammonia, anisated solution of ammonia, are very agreeable and efficient. It is really sinful to use ammonium chloride or carbonate instead.

*Emetics.*—Although intended to disgust, most emetics are not disgusting in taste. The wine of ipecac is quite palatable and preferable to the syrup. Apomorphine is a cardiac depressant, and ought to be used with caution in children. Occasionally tartar emetic or zinc sulphate are indicated, and no special effort need be made to make them palatable. It is to be regretted that emetics are dropping into disuse, as many cases of gastritis could be arrested in their

incipiency by the early administration of an emetic.

*Laxatives, Cathartics, and Purgatives.*—Very few of the many drugs of this group are being employed in children. Calomel and aromatic tincture of rhubarb answer well in most cases. Senna mixture can be made agreeable in conjunction with compound syrup of sarsaparilla. If castor oil is wanted, use the following emulsion:

Castor Oil .....	1	oz.
Oil Peppermint.....	1	drop
Sugar.....	1	dr.
Mucilage Acacia.....	} to make,	2 oz.
Water.....		

[NOTE.—The author's formula has 1 dram of oil of peppermint, but this is undoubtedly an oversight.—ED.]

Rochelle salt in a little aromatic spirits of ammonia, glycerin, and fennel water, forms a pleasant mixture. Podophyllin or aloin may be triturated with aromatic powder. Finally, it is worth remembering that an enema with soap-suds often dispenses with drugging.

*Anthelmintics.*—For all kinds of worms, excepting tenia, small doses of santonin and calomel in powdered sugar do well, especially if assisted by an enema of soapsuds and turpentine or a decoction of quassia-wood. All teniafuges are disagreeable to the taste and irritate the stomach. The following is quite efficient and palatable:

Ethereal Ext. Aspidium (Merck)	3	dr.
Expressed Oil Almond.....	1	dr.
Emulsion Chloroform.....	4	dr.
Emulsion Almond.....to make	2	oz.

Two teaspoonfuls for a child six years old, followed by a moderate dose of castor oil in emulsion.

The author states that failure to expel the worm is often due to the fact that an oleo-resin is used which is prepared from old male fern. This can be obviated by prescribing a preparation made from the fresh green drug, like the above.

Tanret's solution of pelletierine is claimed to be a pleasant remedy.

*Diuretics and Diaphoretics.*—In addition to most of the heart stimulants which are classed among the hydragogue diuretics, we possess several alkaline diuretics that are palatable or can be made so; namely, dis-

tilled water, solution of ammonium acetate, solution of potassium citrate, and spirit of nitrous ether. Among the alkaline salts, sodium benzoate is deserving of special attention, as it is free from any unpleasant effects and acts simultaneously as a diuretic, diaphoretic, expectorant, antipyretic, anti-rheumatic, and antiseptic. It is almost a specific in influenza. It may be administered in any medicated water.

*Expectorants.*—Anisated solution of ammonia, compound syrup of squill, and wine of ipecac, which have already been referred to, are very palatable and efficient expectorants. To these may be added syrup of senega, tincture of cubeb, compound mixture of glycyrrhiza, syrup of wild cherry, syrup of tolu, and syrup of althæa; the latter four syrups serve also as excellent adjuvants. Creosote is of inestimable value in protracted coughs, and may be prescribed in the following manner:

Creosote (Beechwood).....	8 to 16	min.
Glycerin.....	4	dr.
Sherry Wine.....to make	2	oz.

*Astringents.*—It will usually be found that bismuth and chalk mixture will do well in most cases where astringents are indicated:

Bismuth Subnitrate.....	1	dr.
Chalk Mixture .....	3	dr.
Glycerin.....	2	dr.
Syrup Acacia.....	½	oz.
Peppermint Water.....to make	2	oz.

Shake well before using.

Krameria and tannic acid are best administered in an enema of starch and water. Tannic acid may be given by mouth with aromatic powder [but a good substitute for tannic acid is tannalbin, which is odorless, tasteless, and insoluble in the stomach; it dissolves only in the alkaline fluid of the intestines, and can thus exert its full effect on the latter]:

*Gastric Sedatives.*—Last in line but first in importance are the gastric sedatives, for no matter how palatable the medicine may be, it will usually be rejected by a highly irritated stomach. There are many methods for diminishing gastric irritability, notable among them being the use of cracked ice, cold or hot water, small doses of calomel and sodium bicarbonate; lime, peppermint,



or bitter almond water, bismuth, and cerium oxalate. A palatable mixture, which Dr. Hartshorne designates as "remarkably useful," and which the author has often employed with excellent results in vomiting of acute gastro-enteritis in children, is the following:

Arom. Spt. Ammonia } of each, 1 dr.  
 Magnesia ..... }  
 Peppermint Water.....to make 2 oz.  
 One teaspoonful every half hour till relieved.  
 Shake well before using.

The author concludes as follows:

1. Never prescribe medicines unless thoroughly convinced of their absolute indication. If a placebo is desirable, employ a palatable adjuvant.

2. Never prescribe a preparation requiring a large dose when a small quantity of another will prove equally efficient, i. e., use an alcoholic extract or an alkaloid instead of a syrup, tincture, or infusion.

3. Never prescribe an offensive, nauseous mixture when a palatable one will be equally serviceable.

4. Never prescribe more than two ill-tasting drugs in one adjuvant, and do not combine several adjuvants which are apt to disguise each other.

## Treatment of Some Common Diseases of the Skin

SOME valuable practical points regarding the treatment of the commoner skin affections are given by Dr. Phineas S. Abraham,<sup>1</sup> Dermatologist to the Hospital for Diseases of the Skin, and to the West London Hospital.

In the treatment of *eczema* the author believes the best results can be obtained by the simultaneous employment of external and internal remedies. We must pay attention to the digestive organs, the kidneys, the circulation, and even to the nervous system—in short, to everything which may directly or indirectly influence the condition of the tissues and fluids of the skin. Internally, the author gives an iron and magnesia mixture with a little *nux vomica*, or an alkaline, bitter mixture with some aperient in it. Sugar, tea, coffee, pastry, cheese, beer, acid,

and sweet wines or alcohol in any form are to be reduced to a minimum. The external applications differ with the kind of *eczema*, its acuteness, extent, etc. In acute inflamed cases the author recommends, first, thoroughly bathing the parts with a solution of  $\frac{1}{2}$  dr. of creolin to a pint of water, and then applying one of the following applications: The unguentum hydrargyri cum plumbo, which consists of lead acetate and calomel, each 19 grn., zinc oxide and ointment of mercuric nitrate, each 20 grn., and vaselin, 1 oz.; or a modification of Lassar's paste, consisting of zinc oxide and starch, each 3 dr., salicylic acid, 10 grn., and vaselin, 1 oz.; or a mixture consisting of zinc carbonate (calamine), 1 dr., lime-water and olive oil, each  $\frac{1}{2}$  oz. Many cases of acute *eczema*, which resisted other applications, have yielded in the author's hands to the zinc-gelatin treatment: gelatin,  $\frac{1}{2}$  oz.; zinc oxide, 3 dr.; water, 1 oz., and glycerin, 1 oz. To this the author generally adds 10 min. of ichthyol. In dry *eczema* and where there is but little inflammation, tarry ointments are usually very efficacious. The author's combination consists of  $\frac{1}{2}$  dr. of alcoholic solution of coal-tar; 10 grn. ammoniated mercury, and 1 oz. of vaselin—creolin is sometimes, with benefit, substituted for the coal-tar. Prior to the application, the parts are to be bathed with the weak solution of creolin, as recommended in acute *eczema*. In the obstinate *eczema* of the perineum and anus, the author orders a warm sitz bath—night and morning—containing 1 dr. of creolin and 2 gal. water, followed by this application: Tar ointment, 1 oz.; sulphur, 10 grn.; ichthyol, 25 grn. In *eczemas* of the limb the same ointment is applied; but, besides, the legs are carefully bandaged from the foot to the knee—an important adjunct to the treatment.

In *psoriasis* internal treatment is useful, but the external treatment is of paramount importance. Alkalies and diuretics may be useful, but there are no specifics. The value of arsenic in this disease is considered by the author a medical myth. It does more harm than good. Thyroid gland has also been discarded. The best external application is chrysarobin, and the best way to

<sup>1</sup>*Lancet*, No. 4021, 1900.

apply it is in a solution of gutta-percha. The formula is as follows: Chrysarobin, 40 grn.; salicylic acid, 10 grn.; chloroformic solution of gutta-percha, 1 oz. This forms a plastic film, which, when dry, does not stain the linen. A more or less saturated solution of chrysarobin in benzine, rubbed into the patches, and, when dry, painted over with collodion, or gutta-percha solution, is also very effective. The chrysarobin applications are only used for the exterior surfaces, where the skin is less tender; for the other parts of the body an ointment is used consisting of 1 dr. of creolin, 10 grn. of ammoniated mercury, and 1 oz. of vaselin, often with the addition of 10 to 20 grn. of salicylic acid. Before applying the ointment the patients are advised to take a warm bath, containing some creolin, of fifteen to twenty minutes' duration. For psoriasis of the scalp the best application is an ointment consisting of ammoniated mercury, 1 dr.; soft-soap and vaselin, each  $3\frac{1}{2}$  dr. It is to be well rubbed in every night.

In *impetigo* the crusts are first removed by soaking with a weak, warm solution of creolin, and the ointment of ammoniated mercury is applied immediately afterward. If pediculi are present, the head is to be thoroughly washed every night with green soap and water.

In *acne*, also, the best results are obtained by combined external and internal treatment. Internally, the tonic and aperient iron-magnesia mixture is given, and externally the following measures are outlined: The patient is ordered to wash his face with a 10-per-cent. ichthyol soap, and keep the lather on as long as possible. After that an ointment is applied, consisting of 30 grn. of sulphur, 10 grn. of ammoniated mercury, 10 grn. of sulphide of mercury, and 1 oz. of vaselin. Besides, each pimple is touched with the tiniest drop of pure carbolic acid. As a rule, one application is sufficient to cure or to abort the pustule. In indurated cases, where subcutaneous abscesses have formed, or where the pustules are large and deep, they are punctured and the cavity is washed out with an antiseptic solution. Comedones are removed by the comedo extractor.

*Superficial Ringworm of the Scalp* may be treated by the application of tincture of iodine or turpentine; but when the fungus gets deep down into the hair follicles the treatment must be very thorough. The scalp is to be shaved every two weeks, and a calico skull cap is to be worn day and night over the ointment, which is to be rubbed in with a stiff brush into the patches and smeared lightly over the rest of the scalp. The ointment consists of 1 dr. each of carbolic and of salicylic acid to the ounce of vaselin. Twice a week the scalp is lathered with hot water and a mixture consisting of soft-soap, 2 oz.; glycerite of carbolic acid and glycerite of boric acid, of each 2 dr. Once or twice a week, after cleansing the patches with ether, a special pump is applied which forces in by atmospheric pressure any parasiticide that may be used. The parasiticide used by the author is either pure creosote or a mixture of guaiacol with peroxide of hydrogen and ether. These penetrate readily and destroy the trichophyton.

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### Therapeutic Action of Digitalis and Its Active Principles

SIR T. LAUDER BRUNTON<sup>1</sup> analyzes the physiological and therapeutic action of digitalis and its active principles in a paper read before the Thirteenth International Medical Congress. Concerning the employment of digitalis in medicine, the author states:

The therapeutic actions of digitalis or of its active principles are: (1) They regulate the heart's action; (2) assist the failing circulation, and (3) act as diuretics. In cases of palpitation and functional irregularities of rhythm without organic disease, small doses of digitalis, such as 10 min. of the tincture, are sometimes very useful. The good effect of digitalis is well-marked in cases of palpitation which have come on from physical strain, as by lifting heavy weights, or from anxiety and worry. In cases where the palpitation arises reflexly from irritation of the stomach, better results are obtained by bismuth and rhubarb than by any cardiac tonics, although the addition

<sup>1</sup>*Lancet*, 1900, page 477.

of *nux vomica* to these two drugs assists their action. In cases of aortic regurgitation, where compensation is complete, digitalis is quite unnecessary. In fact, in such cases digitalis may be harmful, as a risk arises from fatal syncope, for the blood in the arterial system is emptied backwards into the heart in aortic regurgitation, as well as forwards through the arterioles into the veins, the blood pressure tending to become very low during the cardiac diastole. Should this diastole be prolonged the pressure may sink much below the normal, and the risk of syncope is increased.

Digitalis is of the utmost service when the mitral valves become incompetent, either in consequence of damage to the valves themselves or in consequence of dilatation of the cardiac orifices from weakness after infective diseases, such as in influenza, or from failure of a hypertrophy consequent upon aortic regurgitation or renal disease. Nor is it only when the heart has dilated so much as to render the mitral valves incompetent to close the dilated mitral orifice that digitalis is useful. It may be of service before this period by lessening the ventricular dilatation during diastole, and thus diminishing the amount of blood which can regurgitate into it. At the same time, by contracting the arterioles, it lessens the onward flow, and thus in a two-fold manner retains the blood in the aorta during the diastole and renders the pressure of blood within it more steady, less jerking, and more nearly normal.

To get the best results in severe cases the use of the drug should be associated with rest in bed and massage. By the use of massage, in addition to digitalis, a good deal of work may be taken off the heart, because instead of having to drive the blood right round from ventricle to auricle, it will only have to drive the blood to the periphery—the movements of the masseur returning a great deal of both blood and lymph from the periphery to the heart.

Concerning the use of digitalis in fatty heart, the author says that it is by no means easy to ascertain absolutely that the heart in any patient has undergone fatty degeneration: but when we find that its beats are

feeble and its sounds weak disproportionately to the size of the organ, we will do well to be on our guard against possible injury from digitalis. It is evident that if digitalis causes contraction of the arterioles as well as of the heart, and the heart has undergone fatty degeneration while the muscular fibers of the arterioles have not done so, the resistance to the cardiac contractions will be increased, and a heart that is already hardly able to carry on the circulation may be still further hampered by the drug. In such cases, if it is wished to stimulate the heart by digitalis, we ought to lessen the resistance in the arterioles by the simultaneous administration of nitrites, such as nitroglycerin, nitro-erythrol, or ethyl nitrite, the latter best given in the form of spirit of nitrous ether. The same precaution should be adopted in cases where the arterial tension is high and the heart is just beginning to fail; but in such cases we have also to remember the risk that may arise from the already high tension being increased and leading to a rupture of a vessel in the brain. Here, also, it may be well to avoid digitalis altogether; but should it for any reason be thought advisable to use the drug, not only should nitrites be given at the same time, but great attention should be paid to the condition of the bowels and liver.

From pharmacological researches, the author concludes, we learn a great deal about the action of individual drugs, but there is still an enormous field for investigation in regard to the action of drugs in combination, and although we have no definite information as to why the administration of mercury along with digitalis should greatly increase the utility of the latter, there can be no doubt whatever that this is the case, and that when digitalis alone fails to produce the result desired, it will frequently act most efficiently if mercury be given along with it.

To hasten involution after operations for puerperal infection, Dr. Killebrew<sup>1</sup> advises the use of *ichthyol* or *boroglyceride tampons*, as practiced by Prof. Pryor, of the New York Polyclinic.

<sup>1</sup>*Georgia Jour. Med. and Surg.*, No. 67, 1900.



# PROGRESS IN MATERIA MEDICA

**Yohimbine**, which is the alkaloid of the bark of a tree called Yumbehoa, growing in Southwest Africa, has been recently lauded by some as an aphrodisiac. Dr. A. Loewy<sup>1</sup> has experimented with the substance on rabbits, cats, and dogs, and come to the conclusion that it has a specific action on the sexual apparatus. While it does not seem to increase the sexual desire, it has an effect on the erections of the animals, by producing a general hyperemia of the sexual organs. The author also gave it to one patient, a man of forty-nine years of age, and the latter declared that it did have a good influence on the erections, similar to that of cantharides, which he took while a young man. The dose of yohimbine is about  $1\frac{1}{2}$  of a grain.

**Methylene Blue** (medicinal) is used as an injection in *dysentery* by Dr. Berthier.<sup>2</sup> He uses enemas of 1 to 2 pints of warm water, in which are dissolved  $1\frac{1}{2}$  to 3 grn. of pure methylene blue. These injections, given slowly, are repeated two to four times a day, always soon after an evacuation, and the patient is urged to retain the liquid as long as possible. Under this treatment all the morbid symptoms diminish rapidly and the secretion of bile is soon re-established. The suppression of bile in dysentery is, according to the author, due to a purely reflex acholia, caused by the irritation of the large intestine. Especially beneficial is the treatment in those lighter cases of dysentery which occur during the hot weather; the improvement becomes manifest in those cases from the very first injection, and the cure is generally completed in two to four days.

Methylene blue is absorbed by the rectal mucosa in but very small quantities; the urine of patients subjected to the above treatment is, therefore, but very slightly colored.

The results of an overdose of **Codeine** in a one-year-old child are reported by Dr. Konikow.<sup>3</sup> The child had been ordered  $\frac{1}{2}$  grn. phenacetin powders, but by mistake the druggist delivered some powders which were intended for an adult and which contained 15 grn. of bismuth subnitrate and  $\frac{1}{4}$  grn. of codeine each. One powder had been

administered before the mistake was detected.

Several hours afterwards the child was found in a somewhat drowsy condition, but otherwise normal. The pupils were slightly contracted. Vomiting was induced by ipecac, and instructions were given to keep the child awake for a few hours. On the next day the child was well. The doctor believes that more dangerous results were probably averted by the fact that the codeine was thoroughly mixed with a large amount of bismuth, which more or less prevented its absorption.

**Tincture of Digitalis** in large doses in the treatment of *delirium tremens* is not of very recent origin, according to a communication by Dr. A. G. Paterson.<sup>1</sup> He says that his father had been treating all his numerous cases of delirium tremens with  $\frac{1}{2}$ -oz. doses of tincture of digitalis since 1877, and always with excellent success. He found that if the full dose of  $\frac{1}{2}$  oz. was retained by the patient he usually went to sleep within half an hour, and slept soundly for many hours in succession, awaking refreshed and with a clear head. In one case of very violent character the patient, a man of thirty-seven, went to sleep immediately and slept uninterruptedly for sixteen hours. Even in cases where the patients do not go to sleep, they become quiet and restful. The digitalis seems to quiet the cerebral circulation.

**Cocaine** injected intraspinally is not by any means the safest anesthetic, according to Dr. S. Ormond Goldan.<sup>2</sup> His deductions, based on his own experience and on that of other investigators, are as follows: (1) Cocaine introduced into the subarachnoid space acts in the same way as it does when injected into the general circulation, being possibly less toxic. (2) There is no definite quantity which will answer in all cases. Some are easily influenced by small doses, while others require large amounts to produce the desired effect. (3) Temperament, type of patient, and condition of health do not seem to influence the action of the drug. Large, healthy individuals are often affected by small doses, whereas the sickly, emaciated types often require a second injection to produce anesthesia. (4) There is no method of determining how any particular

<sup>1</sup>Bert. klin. Woch., 1900, No. 42.

<sup>2</sup>La Sem. méd., No. 43, 1900, p. 354.

<sup>3</sup>Phila. Med. Jour., VI, No. 16.

<sup>1</sup>Lance', 1900, No. 4021, p. 902.

<sup>2</sup>Med. News, Nov. 10, 1900.

dose will act in a particular case. (5) Large doses should never be used until the individual susceptibility is determined.

Regarding the *safety* of the various methods of anesthesia, the author places them in the following order: (1) Nitrous oxide and oxygen. (2) Nitrous oxide and air. (3) Ether preceded by nitrous oxide. (4) Ether alone. (5) Chloroform preceded by nitrous oxide and ether. (6) Chloroform preceded by ether. (7) Chloroform alone. (8) Intraspinal cocainization. The author believes that cases are exceedingly rare when a patient is unable to take any of our three general anesthetics: Nitrous oxide, ether, or chloroform.

**Iodipin** has been recently reported on by Dr. Victor Klingmüller,<sup>1</sup> assistant at the Breslau University Clinic for Diseases of the Skin—Prof. Neisser, Director—giving the results of further observations in the treatment of a very large number of cases.

Of all the methods of administration, by far the best, the author states, is the subcutaneous; and during the past year and a half over 100 cases were so treated, the number of injections amounting to between 800 and 900. These cases comprised 20 of secondary syphilis, 3 of malignant and 55 of tertiary syphilis, 5 of psoriasis, 1 of actinomycosis, 2 of leprosy, 8 of doubtful syphilis (tabes, paralysis, and hepatic affections), 2 of syphilis complicated with nephritis, and 1 of bronchial asthma. Besides these, a number of other patients who required treatment with iodides also received iodipin. The injections were made with the 25-per-cent. iodipin, which was first somewhat warmed so as to render it more fluid, and thus more readily forced from the syringe. This latter should have a wider orifice than usual, and the canula, too, should have a large lumen, and should be from 2 to 3 inches long. This length enables a deep injection to be made, whereby more perfect closure is obtained on withdrawing the canula, and the iodipin is prevented from being forced out again by the subcutaneous pressure. The best site for the injections is the gluteal region. The skin where the puncture is made does not require to be anesthetized. All that is necessary after the injection is to rub the spot vigorously with a pledget of cotton moistened with ether. No pain whatever is felt, but only a slight sensation of pressure, which disappears after a light massage has dissipated the injected iodipin. The iodipin remains perfectly sterile, and no inflamma-

tion, infiltration, or abscess was ever observed, either in man or animal, in all the numerous injections practiced. When the cure was to be energetically pushed, 5 dr. of the 25-per-cent. iodipin were daily injected for ten days in succession, and then stopped, or injections were made every other day, and a greater number made. These quantities were sufficient for the energetic treatment of tertiary syphilis; 5 dr. of iodipin every second, third, or fourth day, for eighteen times, was excellently borne by a paralytic; and even 8 to 10 dr. may be repeatedly injected without causing any disturbances.

So far as by-effects are concerned, hardly any iodism was observed in any case. When using potassium iodide, catarrh, headache, etc., were observed in a number of cases; but in the same patients iodipin subcutaneously caused not the slightest appearance of these symptoms. So also two cases of tuberculous leprosy, which exhibited specific idiosyncrasy toward iodides, failed to show disagreeable symptoms with iodipin subcutaneously administered. The extent to which the remedy may be given speaks for its non-toxicity; no pernicious effect has ever been noted, nor has any loss of weight been observed; the stomach and intestines remained entirely unaffected, while the appetite remained perfectly normal. It is just in these respects—viz., that iodipin subcutaneously causes no by-effects, is non-toxic, and yet exerts a specific action—that this remedy is so superior to the other iodine preparations.

In leprosy and psoriasis the results were unsatisfactory. In a case of bronchial asthma which came under treatment because of an eczema, it acted splendidly, the attacks remaining absent for several days after injection. Brilliant results were also obtained in facial actinomycosis, which was completely cured. In older cases of secondary syphilis (papulous, pustulous, and papulo-pustulous) the treatment was combined with mercurials. The number of cases treated, however, and the results obtained are not sufficiently pronounced to enable a definite judgment to be given. No disturbing by-effects from the combined treatment were seen in these cases. For tertiary syphilis, the author considers iodipin to be a specific. The investigations which were made in fifty cases were exceedingly satisfactory, and have led to the use of the subcutaneous injection, wherever possible. It does not even appear to be necessary to administer iodides per os when first beginning treatment, as was first stated. By the subcutaneous method it is possible liberally to

<sup>1</sup>*Deut. med. Woch.*, XXVI, p. 423; abstracted by *Canad. Jour. Med. and Surg.*, 1900, p. 334.



provide the organism with iodine even for months without any disturbing by-effects ever being made manifest. The author hence believes that in tertiary syphilis, iodipin subcutaneously is bound to come more and more largely into use.

It is in the treatment of syphilis of the internal organs, however, that the iodipin appears to be above all adapted, says the author. This is because the iodipin is carried to the remotest parts of the body, and is deposited in all the visceral and other organs (marrow, muscle, liver, etc.), as well as in the fatty tissues, where the iodine is liberated and acts in situ. The author concludes that subcutaneous exhibition of iodipin is bound to become an exceedingly prominent means of administering iodine. The method is convenient, and the iodine action certain, energetic, and more prompt than with other iodine preparations, while no by-effects whatever supervene.

**Morphine** was the subject of the most recent experiments by Dr. Riegel,<sup>1</sup> who has investigated numerous drugs in relation to their effect on the gastric secretion. The conclusions reached are contrary to the generally accepted opinion. The author has demonstrated on dogs, in which he produced a fistula according to the method of Pawlow, that morphine *increases* the secretion of gastric juice. Experiments with small doses— $\frac{1}{6}$  to  $\frac{1}{3}$  grn.—on man produced similar results. These investigations are of eminently practical importance, because they show that morphine should *not* be administered either in gastric affections accompanied by an increased secretion of gastric juice, or in ulcer of the stomach. In those conditions the administration of morphine sometimes increases the pain, and must, therefore, be replaced by atropine or other preparation of belladonna, which latter the author has proved actually to diminish the gastric secretion.

**Sodium Cacodylate** is recommended by Dr. Rocaz,<sup>2</sup> chief of the clinic of children's diseases at the University of Bordeaux, in *pediatric practice*. He has employed it in over eighty cases, sixty of which he has been able to follow up to the very end of the treatment, and convinced himself that if administered internally twice a day, in aqueous solution, with the meals, it is well borne by children, and gives very good results, notably in anemia and in incipient tuberculosis. Regarding the dosage, the author gives the following quantities as the maximum daily

doses:  $\frac{1}{2}$  to  $\frac{2}{3}$  grn. to children from ten to fifteen years of age;  $\frac{1}{3}$  to  $\frac{1}{2}$  grn. to children from six to ten;  $\frac{1}{6}$  grn. to children from three to four years, and proportionately smaller doses to younger children. Before commencing this treatment it is always necessary to examine the condition of the kidneys, and then carefully to watch the susceptibility of the organism to the cacodylate; during the treatment, it is well every once in a while to suspend the drug, in order to guard against cumulative action.

With these precautions, he has been able to avoid those disagreeable by-effects from which adults subjected to this treatment sometimes suffer; he has never noticed any alliaceous odor in the breath, or diarrhea, vomiting, cutaneous eruptions, congestions, etc.

**Olive Oil** in large doses is highly recommended by Dr. Paul Conheim in organic and spastic stenosis of the pylorus and duodenum, and in dilatation of the stomach consequent upon such stenosis. In his paper presented to the Thirteenth International Medical Congress he reaches the following conclusions:

1. Cases of gastric dilatation not caused by an organic obstruction, but by a spasm of the pylorus in consequence of an ulcer or a fissure, are cured or greatly ameliorated in a short time by the daily administration of 3 to 8 oz. of olive oil.

2. Even cases of pyloric or duodenal stenosis of a cicatricial nature, with resulting gastric dilatation, are relatively cured by large doses of the oil, systematically employed. Patients complain of no illness as long as they avoid all excesses in food and drink. In these cases the pain and resistance caused by the friction is relieved by the mechanical effect of the oil.

3. Those cases of relative stenosis of the pylorus and duodenum which are characterized by a continuous secretion and by pyloric spasm coming on after the principal meals, improve or are completely cured by the oil treatment.

4. The oil is best taken—either naturally or through a stomach tube—in doses of about 13 dr., three times a day, one hour before meals. If for some reason it cannot be taken three times a day, it should be given in the morning on an empty stomach in doses of about 3½ to 5 oz.

5. The oil answers three indications: it breaks the spasm, diminishes the friction, and markedly increases the nutrition; because, even in cases of very pronounced stenosis, it gets into the small intestine and is there absorbed.

<sup>1</sup>Therap. d. Gegenwart., 1900, No. 2.

<sup>2</sup>La Sem. méd., 1900, p. 382.



6. In cases of ulcer, the oil acts on the spasm as an anodyne; provided it is pure and genuine, it produces no secondary disagreeable effect. There is no belching up, no diarrhea, and the patients take it willingly.

7. In cases of cramp or spasm of the stomach of a purely nervous origin, the oil produces no favorable effect whatsoever—a fact which may serve as a point of differential diagnosis between spasms of organic and of nervous origin.

8. By the aid of the treatment with olive oil we succeed in improving a great number of cases of pyloric stenosis with resulting gastrectasis, so that surgical interference becomes unnecessary. It is, therefore, desirable to employ this treatment in all cases of pyloric stenosis before resorting to surgical operation.

**Stypticin** possesses, according to Dr. J. Jahl,<sup>1</sup> of Pilsen, a specific influence on the vaso-constrictors, and it is to this fact that it owes its property as a hemostatic. It does not coagulate the blood like the iron salts do. He has used it in a number of cases of *epistaxis* following the infectious diseases, even in measles, and also of a traumatic nature, and has found that the effect in stopping the bleeding was much more rapid than after using iodoform gauze or iodoform-tannin gauze. The stypticin was used often in the form of stypticin gauze or stypticin cotton. He has also used it very successfully in all cases of hemorrhage following tooth extraction.

**Thyroid Extract** has been used with success in a case of *hemophilia* by Dr. C. R. Jones.<sup>2</sup> Two years ago the author had reported the same case as one resisting all treatment. The patient was a girl of eight, who from her earliest infancy had very extensive hemorrhages, every two or three weeks, from the mucous membrane of the digestive tract. Iron, cod-liver oil, sulphuric acid, calcium salts, and arsenic all failed to have any effect, and the doctor had given up any attempt at further medication, when his attention was called to a case of Delace, in which the latter had used thyroid with success. The author began to administer 4-min. doses of "liquor thyroidei" of the British Pharmacopœia three times a day. There was a slight hemorrhage two weeks later, but none has occurred since—a period of several months. The administration of thyroid was continued for six weeks, and

since then the child has been far healthier and stronger than ever before.

[Liquor thyroidei is made by macerating fresh thyroids of sheep in a mixture of glycerin and water, with a small addition of carbolic acid to prevent putrescence. One hundred minims of the solution represent the virtues of one entire thyroid gland. In the six weeks of treatment the patient had taken 504 min. of the solution—an equivalent of five thyroid glands.—Ed.]

The hypnotic effect of **Apomorphine** is confirmed by Dr. E. W. Adams.<sup>1</sup> He was called in to see a woman who had partaken rather freely of alcohol and was behaving very boisterously. He decided on an emetic, and accordingly gave her a hypodermic injection of  $\frac{1}{15}$  grm. of apomorphine. To his surprise the patient did not vomit, but in about twenty minutes was quietly sleeping, "much to the relief of her friends and the surprise of her medical attendant." Another effect of the apomorphine was to mitigate the ineffectual retching afflicting the patient prior to the injection.

**Silver Nitrate** was recommended about two years ago by Dr. M. Perlsec<sup>2</sup> as a means of inducing artificial labor; since then the author has become convinced that the same treatment is applicable in the management of *retention of the secundine* and of *puerperal endometritis*, provided the latter has not yet caused a general infection. The author's method consists in introducing into the uterine cavity a pencil of silver nitrate, about 2-5 inch long and  $\frac{1}{8}$  inch thick. As, when used for inducing abortion, it causes strong uterine contractions and expels the ovum, so in the second class of cases it causes expulsion of the debris and of the retained secundine; besides, it exerts a most favorable antiseptic effect on the mucous membrane of the uterus.

**False Pains**, states Dr. Carrington,<sup>3</sup> are not only useless, but injurious. They have little or no relation to the delivery of the child, are not expulsive, and do not help to dilate the os. The only effect they have is to wear out the strength and patience of the woman, to excite the commiseration of friends, and to annoy the doctor. It is the doctor's duty to stop them, and the best means to accomplish this is a full dose of *morphine*. The dose must be sufficiently large to induce sleep; when the woman

<sup>1</sup> *Aerzt. Cent. Zeitung*, No. 24, 1900.

<sup>2</sup> *Brit. Med. Jour.*, No. 2030, p. 1375.

<sup>1</sup> *Brit. Med. Jour.*, No. 2030, p. 1375.

<sup>2</sup> *La Sem. méd.*, 1900.

<sup>3</sup> *Med. Council*, 1900, p. 375.

wakes from the sleep she will almost in every instance have true pains.

For a RIGID OS the author has found cocaine of the highest value. He saturates a piece of cotton with a solution of cocaine—10 grn. to the ounce—and applies it by the aid of a speculum directly to the os; the os usually relaxes within a short time.

**Iodipin** has been employed by Dr. G. Nobl<sup>1</sup> in twenty cases of *tertiary syphilis*—infiltrated and ulcerated gummata—with most excellent results. In primary syphilis it had no effect. The author used the 25-per-cent. preparation, varying the frequency and the dose according to the severity of the case. In no instance were any signs of iodism apparent, even in cases in which more than 3 oz. were injected in a short time, nor were there any other disagreeable effects. The pain accompanying the injections is but moderate. The author also states that the elimination of the iodine from the body is very slow—that is, that iodipin remains in contact with the tissues for a long time, exerting all the while its beneficial effects.

**Male Fern** in the treatment of *intestinal worms* is often ineffective on account of the drug being vomited. To obviate the nausea and emesis produced by the otherwise valuable preparation of the oleoresin of male fern, Dr. Fleisch<sup>2</sup> has administered small doses of cocaine and belladonna in conjunction with it, and found this compound to answer the purpose well. The formula is as follows:

Cocaine Hydrochlorate.....	2½ grn.
Ext. Belladonna.....	3 grn.
Valerian Water.....	2½ dr.

A few drops before and during the administration of the oleoresin of male fern.

**Potassium Bicarbonate** is lauded by Dr. S. Harnsberger<sup>3</sup> as the best remedy in *influenza* and *colds*. Regarding colds, the somewhat sweeping statement is made that "potassium bicarbonate, given early, will in nearly every instance abort a cold very effectually and almost at once." In influenza the author has been using it for the last eleven years, and he has become convinced that the drug possesses unusual value in that disease. Influenza is, according to the author, the only disease in which the adult heart-muscle becomes weakened primarily or from the very outset of the attack. This is why pneumonia is so frequently a compli-

cation. The weakening of the heart-muscle in this disease bears a close resemblance to a similar condition of the cardiac muscle in children suffering from severe, acute, infectious diseases. Since treating the disease with potassium bicarbonate, the author finds that his patients become quickly relieved and make a more speedy and thorough recovery. He gives the bicarbonate in doses of 30 grn. dissolved in a cup of milk, and repeated every four hours during the day. No other diet is allowed for the first forty-eight hours. When milk is not well-borne, the bicarbonate is dissolved in a glass of cold water. The action of the bicarbonate is intensified if, prior to its administration, a good cathartic, such as calomel or podophyllum, is given.

**Eucaine-B** is altogether unsuited as a substitute for cocaine in subarachnoid anesthesia, according to Dr. Fritz Engelmann,<sup>1</sup> of the University Clinic of Bonn. Looking for an agent possessing less toxicity than cocaine, the author had an experienced surgeon inject into his (the author's) spinal cord  $\frac{1}{8}$  grn. of eucaine. The injection was made successfully and *lege artis*. Soon after there appeared some numbness in the legs, but at no time was there the least trace of anesthesia. The symptoms that made their appearance subsequently were of an extremely violent nature. There were severe unbearable pains in the loins, nausea, vomiting, chills, violent headache; the pulse was small and irregular, ranging from 65 to 85 per minute; temperature rose to about 102° F., and there was also dyspnea and cardiac distress. The headaches were peculiar in their severity, in their duration—lasting fully nine days—and in the fact that they disappeared on the author's assuming a horizontal position. The toxic symptoms disappeared on the tenth day.

[We cannot help believing that the above-described symptoms were not due so much to the eucaine as to an infective process. The long duration of the symptoms points in that direction. It is possible that the injection was not performed under absolute asepsis.—Ed.]

**Dionin** has been used by Dr. Boer-nikoell,<sup>2</sup> of Prof. Senator's clinic, in the Charité, in Berlin, in over 200 cases. In acute and chronic diseases of the respiratory tract, such as bronchitis, pneumonia, tuberculosis, it has done excellent service. It brought about a diminution in the cough without increasing the amount of

<sup>1</sup> *Festschrift gewidmet Prof. J. Neumann, 1900.*

<sup>2</sup> *La Presse méd.*, IX, No. 15.

<sup>3</sup> *Phila. Med. Jour.*, 1900, Nov. 10.

<sup>1</sup> *Munch. med. Woch.*, XLVII, p. 1531.

<sup>2</sup> *Klin.-therap. Woch.*, No. 17, 1900.



expectoration. The dionin was administered to the patients at night per os or hypodermically in doses of  $\frac{1}{4}$  to  $\frac{1}{2}$  grn. As an analgesic it acted excellently in gynecological affections, such as para- and endometritis, carcinoma uteri, etc. Injected in doses of  $\frac{1}{4}$  to  $\frac{3}{4}$  grn. in cases of acute articular rheumatism, the pain ceased and the patients rested quietly for several hours. The analgesic action of dionin was also very noticeable in certain cases of tabes, especially during the gastric crises. The effect of the dionin is felt fifteen minutes after its administration. The author says that in no instance has he noticed any disagreeable by- or after-effects, such as headache, vomiting, etc. He concludes his paper by saying that in dionin we possess a precious succedaneum to morphine.

**Strychnine** has been used in large doses by Dr. Chas. S. Potts<sup>1</sup> for the relief of two cases of *tic douloureux*. The first patient was a woman of forty-five, who began to have pain in the infraorbital region about a year previous to coming under observation. This pain gradually increased in severity, and became associated with severe paroxysms of pain darting in the course of the three branches of the trigeminus. Profuse lachrymation attended the attacks, eating was often impossible, and sleep had been practically impossible for some time. She was put to bed, given a liquid diet, principally milk, a tonic mixture of tincture of iron and Fowler's solution, and strychnine was injected hypodermically, the first injection containing  $\frac{1}{30}$  grn., the dose being gradually increased to  $\frac{1}{2}$  grn. in seventeen days. This latter dose proved to be the maximum safe dose for this patient. In about a week after commencing the treatment the pain had markedly subsided, and in six weeks more the patient felt entirely comfortable. Freedom from pain continued for twenty-one months, when, after a season of hard work and insufficient rest, the pain returned, becoming so severe that she could not go to bed for several weeks. It resisted all the usual treatment for neuralgia. The patient then again applied to the doctor, and the same treatment was instituted. By the end of the first week there was marked relief, and in seventeen days all pain had disappeared. There had been no return of pain up to the time of writing—fifteen months afterward.

In the second case, a woman of thirty-nine, the strychnine treatment was of no avail, and she was operated upon—removal

of second division of fifth nerve, together with sphenopalatine ganglion—with good results.

**Suppurative Otitis Media** can, in spite of the assertions of many otologists to the contrary, be cured without operation. Irrigation with an antiseptic fluid is the method recommended by Dr. F. Faulder White,<sup>1</sup> and he says that if properly conducted it yields excellent results, and even when the bone is affected a cure will sometimes result. The author uses a saturated solution of silico-fluoride of potassium, dilutes it with 1 to 6 parts of hot water and by means of a Higginson syringe, injects and irrigates the ear gently until about 1 quart of liquid has been used. This irrigation is repeated three or four times a day. In a few days there is a marked diminution of the offensive odor. No astringents, no absolute alcohol or dry dressings are to be used at this stage, as they would check secretion and the poison would thus be absorbed instead of eliminated.

The author had several cases that had been under the care of skilled specialists and which recovered only after a course of irrigation. The objection that the douche might act as a carrier of germs to the healthy parts of the ear is purely theoretical; in a large number of cases so treated by him he does not recall a single instance where an extension of the suppurative process took place. It is in using the chisel and drill where the danger of further infection is real enough and not problematical, as it is in the douche treatment.

**Diphtheria** has been treated by Dr. Hugh Taylor<sup>2</sup> with *tincture of iodine* for more than a quarter of a century, and the results have been so favorable that during that long period he has had only two fatal cases, though his practice has been very large. On being called to a case the author gives at first a good dose of calomel, and then paints the throat, tonsils, back of pharynx, and uvula with tincture of iodine, either by means of a camel's-hair brush or a swab of absorbent cotton. He also orders the inhalation of iodine—a teaspoonful of the tincture in 4 oz. of hot water—about every half hour for five minutes at a time, or even more frequently in severe cases. Under this treatment the fetor of the breath quickly disappears, and in a short time the membrane begins to peel off. The author relates a case of very severe diphtheria

<sup>1</sup> *Therap. Gazette*, XXIV, No. 10.

<sup>1</sup> *Transactions Sixth Intern. Otol. Congress*, p. 467.

<sup>2</sup> *Brit. Med. Jour.*, No. 2080, p. 1375.



which he had seen recently, in which the application of pure tincture of iodine caused a disappearance of the membrane in a few hours, so that the injection of antitoxin became superfluous. In addition to the iodine the author gives general tonics, such as quinine, tincture of iron, brandy, and port wine, beef-tea, etc. Occasionally he also gives small doses of tincture of iodine internally, but this is not often found necessary. For disinfecting the air of the room a few grains of iodine are volatilized on a hot shovel.

The author says that he belongs to those who believe that diphtheria is primarily a local disease; that the general system becomes subsequently affected through absorption, and it is therefore necessary to apply at once a strong antiseptic and disinfectant to the local focus of infection—the pharynx and contiguous structures.

A case of **Paraldehyde Poisoning** is reported by Dr. Lovell Drage.<sup>1</sup> The patient, who had suffered for several years with emphysema, bronchitis, and heart-disease, was in the habit of using various drugs to excess. Within thirty-six hours the patient had taken about 4 oz. of paraldehyde, taking about 2 oz. at once in the last dose. When a physician was called in he noticed the following symptoms: Unconsciousness, profuse perspiration, deep cyanosis, intermittent pulse, and shallow breathing. Strychnine was administered hypodermically with some improvement, but death supervened three hours after the last dose was taken. The author believes that this is the first case on record of fatal poisoning with paraldehyde, and thinks that 85 drops should constitute the maximum single dose, as ordered in the German Pharmacopœia.

**Furunculosis** is treated by Dr. G. Ullmann,<sup>2</sup> private-docent of dermatology in the University of Vienna, with most signal success by the aid of *ichthyol*. The affected region is carefully shaved and a mixture of the following composition is painted on with a brush:

Ichthyol.....	} of each, 2 fl. dr.
Ether.....	
Diluted Alcohol.....	

The painting is repeated twice or three times a day. The ether and alcohol evaporating, a uniform and firmly adherent layer of *ichthyol* is left. After the region has been painted a certain number of times the adherent layer of *ichthyol* is washed off by the aid of ether and the mixture is re-

applied. The therapeutic effect of this method of treatment is remarkable. Very frequently, in a few hours after the first application, there would commence a marked and rapid diminution of all the inflammatory symptoms. In a number of cases the furuncles dried up and disappeared after a few days' treatment and the necrotic areas became replaced by healthy tissue. Should some deep indurations still remain after a certain length of time they can be made to disappear rapidly by the application of the above solution mixed with 1 per cent. of chrysarobin which had been previously dissolved in some ether and alcohol.

**Trachoma** has been treated with *ichthyol* by M. Eberson (*Therap. Monatsh.*, xiv, p. 313),<sup>1</sup> who gives the clinical histories of five cases of trachoma, illustrating the good results afforded by *ichthyol* in this otherwise intractable disease. He differentiates two forms of the disease, a dry or mild and a moist or severe. The former is best treated with copper sulphate, but the latter requires more energetic measures. The method followed by the author is first to wash the everted lids with a solution of corrosive sublimate, 1:5000, to remove pus, mucus, etc., and to cause a slight mechanical hyperemia. The friction must not be too severe, otherwise the conjunctiva is made to bleed. A few drops of pure *ichthyol* are applied with the rounded end of a glass rod and spread out in a rather thick layer. This is allowed to remain a few seconds, or until the patient feels the burning pain no longer, when it is then washed away with clean water by means of cotton. It is sometimes advantageous to employ a 50 per cent. *ichthyol* solution for the first few applications, and then to proceed to undiluted applications. This treatment relieves the severe, annoying symptoms accompanying trachoma, without incurring noteworthy pain, and without giving rise to cicatrices. At the same time, it almost entirely removes all danger of infection.

A case of **Hydrochloric-acid Poisoning** with perforation of the stomach is reported by Dr. W. Billington.<sup>2</sup> A child, two and one-half years old, had swallowed some crude hydrochloric acid. When brought to the hospital, about twenty minutes later, the child was screaming and writhing about in great agony. There was no staining or erosion of lips, tongue, or

<sup>1</sup>*Lancet*, 1900, No. 4021.

<sup>2</sup>*La Sem. méd.*, 1900, p. 314.

<sup>1</sup>*Med. News*, Oct. 27, p. 658.

<sup>2</sup>*Birmingham Med. Rev.*, Oct., 1900.

mouth. It vomited several times, the vomit consisting of dark altered blood and some mucus. The vomit did not have an acid reaction. Calcined magnesia was at once administered; also a starch enema with 10 min. of laudanum to relieve the pain, and strychnine injections and brandy per rectum as stimulants. In spite of treatment the child died six hours after taking the acid. On autopsy, eight or ten small perforations were found in lower part of stomach, which contained a quantity of dark blood; there were 8 or 10 oz. of blood in the peritoneal cavity; entire mucous membrane of stomach was blackened and eroded, as was the mucous membrane of the duodenum for about 2 inches from pylorus.

The case is interesting as showing the great tissue destruction which may be caused by hydrochloric acid, and at the same time the entire absence of indications in the mouth and lips that a corrosive had been swallowed. It also shows the danger of using the stomach tube in such cases. The wall of the stomach was so thin and rotten that even the softest tube would almost certainly have perforated any part of it.

**Facial Erysipelas** has been treated by Dr. Desesquelle<sup>1</sup> with a combination of *guaiacol menthol* and *camphor* with success, and while the author does not wish to claim that this is the only treatment to be employed in erysipelas, he states that the alleviation of the itching, burning, and other disagreeable symptoms is so marked that the combination is well worth a trial in every case. In three out of five cases treated recently the entire face and scalp were affected, there was hyperpyrexia, delirium, etc., but all symptoms rapidly subsided under this treatment. The formula used by the author is as follows:

Guaiacol.....	} of each, 15 grn.
Menthol.....	
Camphorated Oil.....	1 oz.

To be painted on the affected part and on the surrounding healthy tissue, with a camel's hair brush, every two hours.

In treating **Diarrhea** of children, says Dr. W. H. Dukeman,<sup>2</sup> we must first turn our attention to the cleansing of the alimentary canal. Aromatic syrup of rhubarb or castor oil is the best for this purpose; if the child has much pain or is very fretful  $\frac{1}{2}$  drop of deodorized tincture of opium, or 5 drops of paregoric in a teaspoon of

water should be given. The diet should consist of thin barley water and if there is much gastric acidity compound chalk powder, with aromatic powder, given before nourishment, is very useful. When some improvement has set in, white of egg mixture and peptonized beef juice are alternated with the barley water. Children thrive on this combination wonderfully well. In chronic cases the same treatment is to be carried out, but if the lower bowel is so affected that pathological changes have taken place in the mucous membrane, rectal injections are to be used. The injections should consist of a solution of boric acid; if this proves ineffective, silver nitrate is to be used, 3 or 4 grn. to a pint of water. Where the diarrhea persists in spite of the above treatment, the author administers astringents combined with antiseptics. He recommends the following formula as very effective:

Tannalbin.....	5 grn.
Phenol-Bismuth.....	$\frac{1}{4}$ - $\frac{1}{2}$ grn.

To be given one hour before nourishment, three times a day, for a child one year of age.

**Hemorrhages** from the bladder, states Dr. Cumstan,<sup>1</sup> occurring after curettage of this organ, are easily controlled by irrigations with a 4-per-cent. solution of *antipyrine*, or by instillations of a concentrated solution of *ferropyrine*.

Two interesting cases of fatal **Lead Poisoning** were reported by Dr. Allen Baines,<sup>2</sup> of Toronto, to the American Pediatric Society. The patients were brothers, aged nearly three years and six years, respectively. For a week previous to the children's being taken ill the meals had been cooked with firewood procured from staves of old barrels that had contained white lead, so that the fumes of lead not only entered into the food, but permeated the atmosphere of the rooms. The symptoms were severe pain in the abdomen, which was retracted, obstinate constipation, most violent and persistent convulsions, intense thirst, vomiting, and coma. There was one other symptom, not described elsewhere, which the author noticed, and which was particularly marked on account of the fair complexion of the children—namely, a pronounced dark-blue circle about the anus. The mother was also taken ill with a sharp attack of lead colic, accompanied by the other symptoms of chronic plumbism, but she yielded to treatment and recovered. Before the etiology of the case could be obtained, the first case was

<sup>1</sup>Bull. gén. de Thérap., 1900, p. 470.

<sup>2</sup>N. Eng. Med. Monthly, Oct., 1900, p. 371.

<sup>1</sup>N. Y. Med. Jour., 1900, p. 487.

<sup>2</sup>Canad. Pract. and Review, xxv, No. 11.

treated as one of basilar meningitis, as the symptoms were practically those of that disease. Both children died. The urine of one of the children was examined, and  $\frac{1}{4}$  grn. of lead was found in  $\frac{1}{4}$  oz. of the urine.

**Infantile Thrush** is treated by Escherich<sup>1</sup> in a very simple, ingenious, and effective manner. A piece of sterile absorbent cotton is impregnated with about 3 grn. of boric acid finely powdered, and a very minute quantity of pure saccharin. This is enclosed in a little bag made of silk or batiste, and this is given to the infant to suck. The child, as a rule, readily and gladly continues the sucking on account of the sweetness imparted by the saccharin and the boric acid is thus slowly dissolved by the saliva and has a chance to act directly and continuously upon the *oidium albicans*. A fresh bag is used every day, or twice a day. The effect of this treatment becomes apparent in a very short time. If the deposit is not yet very extensive it disappears entirely within twenty-four hours. In old cases a longer period of treatment is required, but removal of the white patches may be hastened by mechanical cleansing and by cleansing the mouth with a proper wash.

A very severe case of **Carbuncle** is reported by Dr. Seillikovitch,<sup>2</sup> of Philadelphia. When the patient presented himself the carbuncle had a dreadful appearance. Half of the patient's back was inflamed, and all the muscles were drawn together. The doctor told the patient there was only one chance for him—to make a crucial incision and cauterize with carbolic acid. The patient absolutely refused the knife and carbolic acid, and no representations or arguments could shake his decision. The doctor then applied pure ichthyol locally; gave the patient a bottle of magnesia, some pills of iron, quinine, and strychnine, and also 3 oz. of brandy daily. The patient needed considerable stimulation, as his condition was very low. He improved daily, and was well in ten days. The doctor says that he would not have given the patient more than ten days to live, and ascribes the saving of his life to the local use of ichthyol. In furuncles and in ordinary carbuncles the author uses an ointment of 1 dr. of ichthyol to 1 oz. of vaselin, but he always incises the boil, to allow of a more easy escape of the discharge.

In the same issue of the journal (p. 430), Dr. C. H. Fisher outlines the following method of treatment of carbuncles: Take a

piece of aseptic gauze, proper size, saturate with Tiersch's solution, and spread with 10-per-cent. ichthyol ointment. Apply to carbuncle and cover with a piece of rubber protective to retain the moisture, and over all place a layer of aseptic cotton. At the end of from two to four days, the cores, having entirely separated, can be easily and painlessly removed.

A case of **Renal Hemophilia** cured by the internal administration of *gelatin* is reported by Dr. E. Hahn.<sup>1</sup> The patient belonged to a family of bleeders; his uncle died from a hemorrhage, which could not be stopped; his brother bled long after the extraction of a tooth, and he himself bled for weeks after a similar operation. He also suffered frequently from obstinate nose-bleed. For some time he had severe pains in the region of the kidneys, and during the few days before treatment his urine had been full of blood. When coming under the doctor's observation, the patient was extremely pale, thin, and melancholy. He was put to bed, restricted to a milk diet, and a solution of ferric chloride was administered. This treatment was continued for two weeks with absolutely no improvement. The urine was just as full of blood and the patient lost 14 pounds during these two weeks, becoming extremely debilitated. Recollecting having read of the hemostatic properties of gelatin, the author ordered the administration of gelatin with all the patient's food, so that he took 6 to 8 oz. of the substance per day. On the very next day the amount of blood in the urine was markedly smaller, and the day following the urine was free from blood, and remained so. The patient's subjective condition underwent a remarkable change. The gelatin was continued for about two weeks, and the urine remained free from blood, albumin, or sugar. As the hemorrhage ceased immediately after the administration of the gelatin, the author thinks himself justified in considering that substance the true curative agent in the case. He also advises the use of gelatin in gastric, intestinal, pulmonary, and uterine hemorrhages. As the internal administration of the remedy is so easy of accomplishment, no physician should fail to give it a trial in any urgent case of hemorrhage.

[The hemostatic blood-coagulating properties of gelatin seem to be established on a fairly firm basis; while objections may be raised to its hypodermic or muscular administration on account of extreme painfulness, no hesitation should be felt in administering it internally.—Ed.]

<sup>1</sup>*Rev. mens. d. Maladies de l'Enfance*, 1900, p. 304.

<sup>2</sup>*Med. World*, 1900, p. 429.

<sup>1</sup>*Munch. med. Woch.*, 1900, p. 1459.



# Of General Interest

**Bias in Clinical Medicine.**<sup>1</sup>—Dr. Judson S. Bury, of Manchester, delivered an interesting address on the above subject on October 17 to the members of the Medical Society of University College, London, on the occasion of the society's annual public night, held at University College. Dr. Bury said that as students and medical men one of their main duties was the examination of patients. His experience was that this was not always done in a satisfactory manner. There was need for more care; the examination was too often carried out in a perfunctory manner. For example, they found bronchitis and thought that that was a complete diagnosis, but they omitted to consider the aching pain through the left side of the chest which the patient had mentioned several times and which, as the necropsy showed, was due to an aneurysm of the descending portion of the aorta. The bias of bronchitis had entered the mind and its door was closed to the consideration of other symptoms. The customary use of the word "bias" was in accordance with its original meaning, and a person was said to look at things in a biased manner or obliquely. The causes of bias were partly congenital and partly acquired. As an example of congenital bias Dr. Bury gave a description of a medical student afflicted with this peculiar mental blindness at work in the wards of a hospital. He appeared to have no idea how to proceed when asked to examine a patient, whom he regarded as a strange foreign animal, and exhibited a distinct mental bias against approaching him too closely. When persuaded to go near the patient and prompted with certain questions to ask the patient, he repeated the queries, and although intelligent answers were given him he did not seem to afford his brain any guide as to the mode of procedure. Education might do something for this type of student, but the mental bias against scientific method was too strong for much success to be attained. By acquired bias was meant a condition that might affect the mind of good average development and promising scientific aptitude. One of the chief causes of this was imperfect education allowing the mental faculties to work in a fixed groove. Sir J. Russell Reynolds used to tell how once at the practical examination in medicine for the London M.D. he asked the candidates after they had examined one of the skin cases if they noticed anything else wrong with the patient, and most of them failed to observe that one side of the face was completely paralyzed. They were biased in favor of skin lesions and could not observe anything else, but if they had been told that it was a nervous case the facial paralysis would not have escaped their notice.

The cure was to have a detailed methodical scheme, and when any one felt nonplussed over a case to be sure that all the headings of the scheme had been gone through. Another form of bias was the bias of authority, by which term was meant all statements with regard to disease and its terminology to be found in the best medical literature. It seemed paradoxical to affirm that the knowledge of disease already gained acted in some degree as a retarding agent, yet there was an element of truth in such a statement. A fresh discovery in medicine might turn the mind too much in one direction and destroy the comprehensive view necessary for real progress. All authoritative statements, even the names of diseases, might in a sense be regarded as productive of mental bias; the remedy was to strive to acquire a scientific habit of mind. If an original investigation was made into the classification of diseases into curable and incurable, and observations were made with regard to the course and termination of morbid processes, it was found less possible to draw sharp distinctions between curable and incurable diseases. In illustration of this Dr. Bury quoted a case of his own of a girl who exhibited definite objective signs of brain disease, which were observed and verified both in Manchester and in London. All the symptoms entirely passed away and the patient regained her sight and health and was able to resume her occupation. Such experiences tended to modify their views in two directions: they made them more careful in the treatment of ailments that tended to recovery and more hopeful regarding those which, as a rule, pursued a downward path. Proceeding further, Dr. Bury said that the bias of inclination was especially dangerous, and it came to the front in reports of cases and in essays and monographs on special diseases. The specialist, perhaps unconsciously, did not give full consideration to features which pointed to another conclusion—he regarded these as exceptional, and laid stress on facts which favored what he wished to believe and ignored facts which told against his inclination. It was necessary to remember that having decided in favor of a particular diagnosis their mind must not be closed to the possibilities of future developments. The bias of specialism was another danger to be guarded against; a division of labor was necessary for the advancement of any science, but if energy was concentrated in a particular direction it must not be wholly expended there. It was desirable for a throat specialist to restrain his tendency towards the diagnosis of adenoids and to curb his ardent desire to cut or scrape the throat of every child who was brought to him.

The last bias which Dr. Bury described was the

<sup>1</sup>*Lancet*, Oct. 27, 1900.

bias of physical signs. A patient was not an automatic machine into which a penny could be dropped to pull out a particular disease ready for treatment. On the contrary, the organs by which he moved and lived were composed of living tissues which had a past history and a future development, both of which required consideration before the case could be properly grappled with. The thoughtful, qualified man began to find out that he must study other things than mere medicine to acquire that knowledge of humanity so essential to a just appreciation of the many ills to which flesh was heir. The man who got into a habit of regarding every patient as merely a "case" and who ignored the look of feebleness or of distress, or the expression of anguish, and thought only of physical examination, was not well equipped for the diagnosis of obscure disease—he became a machine which was totally unable to unravel the complicated problem of human pathology. Three things were essential for the preventive treatment of the disorder known as bias—namely, care, doubt, and truth, and if one thing helped more than another to avoid the pitfalls of bias and of hurried unscientific work it was that practitioners should put themselves in sympathy with their patients and that they should care for them in the way that Dr. James Jackson, the hero of Oliver Wendell Holmes, cared for his patients. Jackson would have it that to cure a patient was simply to care for him. Such devotion was only to be looked for in the man who gave himself wholly to medicine, the noblest of arts which the gods of ancient religions did not disdain to practice and to teach.

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**Practical Medicine and Laboratory Research.**<sup>1</sup>—The time has come when we should cry a halt to too exclusive a theory of disease. The germ theory of it as understood up to the present time is mighty and has prevailed. I, for one, do not wish to ignore it or lessen at all its legitimate and great conclusions. I do wish, however, to affirm that it is not universally applicable, as it seems to me, and at all events there are "fruitful sidelights" bearing upon "the etiology and prophylaxis of disease which demand our most careful investigation."

What should always be recognized and considered is that behind the disease, and far more important usually, is the patient. The clinician should always rank foremost. To him finally the bacteriologist and chemist should always report their findings. It is he who should settle the importance they have and the treatment, prophylactic and curative, which should be adopted. Let every health board take cognizance of this, and then the general practitioner—well informed and broad-minded—will secure again the first rank, which almost invariably belongs to him *de jure*, if not *de facto*.

<sup>1</sup>Beverley Robinson, in *N. Y. Med. Jour.*, Dec. 1, 1900.

If not settled in this way definitely, at least let there be informal and friendly personal consultation between the representative of the board of health and the family adviser before the homes and personal rights of patients are controlled absolutely for their own good and the public welfare.

In a way, I wish for each family or individual an analogous conduct to that we have lately seen when the bubonic plague threatened our city of New York. Immediately when the disease was thought to be here and immense property interests and the health of all our citizens were at stake, a meeting of the advisory council of the board of health was called, and the two together determined what was best to do to protect all. So let there be, when contagious or infectious disease invades a home, mutual understanding through personal contact before onerous and perhaps unnecessary restrictive measures are determined upon or carried out.

If a bacillus is present in the mouth or throat which is said to be that of diphtheria, and if at the same time there are morbid symptoms of its presence, isolate the patient and protect others. But if the bacillus is there without symptoms, does it not seem more than we can reasonably and ultimately uphold that precautions should be taken against which common sense revolts and wider, more accurate scientific acquirements tend to disprove?

"The whole history of the tubercle bacillus ought to have taught us caution. It is only after the tubercles have formed, matured, and broken that bacilli are discovered in the sputum; they are often not seen for months or even years; in fact, not until the soil and conditions are favorable for growth. . . . That specific micro-organisms are associated with certain diseases is indisputable, that they or their products will reproduce the same disease, in other words, will 'breed true,' is equally undeniable, but that they are the *original* primal cause is a very different matter" (from the *Lancet*, February 4, 1899). It is a good working theory, as is abundantly shown, but it is "not proven" in all cases. It is one which should be received, therefore, with limitations.

"I am not ignoring," writes the late Dr. Fitzgerald, "or depreciating the enormous, the brilliant services which bacteriology has rendered to science: I am merely pleading for a more rational view, a dispassionate judgment, a calm, judicial attitude, relegating it to its proper sphere as the handmaid, not the master and leader, of science, always remembering that its seductive brilliance should not blind us to other and more prosaic aspects of disease."

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A young child of East Baltimore, Md., having died of diphtheria, the mother borrowed mourning clothes from a friend, returning them after the funeral. Diphtheria afterward developed in the home of the accommodating friend.



# The Prescription

We wish to have our readers use this department with the utmost freedom. Any question about the prescription or about any substance used in prescriptions comes within its range. We shall do our best to find correct answers for all, and if we fail for lack of information at hand, some one of our readers may be able to give the right reply. On questions of therapeutics or practice we shall not attempt to give any opinions of our own, but find for the questioner what the best available authorities on such subjects have to say upon them. Let every reader resolve his doubts about compatibilities, doses, latest remedies, best methods of administration, dangers of remedies, etc. Send in favorite prescriptions and let others be benefited by what you have discovered. We shall give full credit for all such information. As some persons do not care to have their names appear as the authors of queries, we will refrain from giving names in this connection when requested to do so. Sometimes it is an advantage to have the writer's name published, and in such cases we hope that overdifidence will not interfere with the right.

Dr. J. C. B. wishes to know when and where Dr. Fothergill lived, and what is understood by "Fothergill's disease," and "Fothergill's sore throat," also the composition of "Fothergill's pills."

There were two eminent English physicians by the name of Fothergill. John Fothergill (born, 1712; died, 1780) was well known not only for his attainments in medicine, therapeutics, pharmacy, and botany, and as an author of books on the above subjects, but also for his beautiful character and general philanthropic work. John M. Fothergill (born, 1841; died, 1888) was well known as a skillful physician and as the author of many works, among which are "The Heart and Its Disease," "Indigestion, Biliaryness, and Gout," "The Practitioner's Handbook," etc. Fothergill's disease or Fothergill's face disease is trigeminal neuralgia; Fothergill's sore throat is the ulcerative sore throat occurring in severe forms of scarlatina (scarlatina anginosa). Fothergill's pills, used in nephritis, in ascites, and in cardiac dropsy, consist of calomel, digitalis, and squill—1 grn. of each.

Dr. A. C. asks for an explanation of the word *opocephalus*.

Opocephalus is a monstrosity characterized by the absence of one orbit, absence of mouth and nose, and fusion of the ears.

Dr. T. J. D. writes that he has seen recommended for *dysentery* a pill consisting of silver nitrate, extract of opium, and extract of hyoscyamus, and thinks that it is a poor combination, as he has been taught that silver nitrate is incompatible with organic extracts.

It is perfectly true that silver nitrate is incompatible with organic substances, as it becomes reduced to silver oxide and then to metallic silver. Nevertheless, clinicians have been using the above combination for many years, and they claim to get good results. Of course, it is possible that the good results are due alone to the opium and the

hyoscyamus, and then again it is possible that the silver oxide and the finely and minutely divided metallic silver produce a tonic, astringent, and antiseptic effect.

Dr. T. N. writes: I read in the "Journal" a reference to the treatment of *mal de bassines*, but there is no explanation there as to what kind of a disease *mal de bassines* is. Can you inform me?

*Mal de bassines* is a disease occurring in girls who are employed in winding the silk-worm cocoons. It is a kind of dermatitis, and is caused by a toxic substance in the urinary product of the silk-worm. The HYPOCHLORITE OF SODIUM OR CALCIUM is considered an efficient application.

Dr. F. W. asks for the proper dose of DIGITALIN and DIGITOXIN.

The dose of Digitalin (German) is stated in the text-books as  $\frac{1}{60}$  to  $\frac{1}{30}$  grn., but recent clinical experience has shown that this dose is too small, the proper dose now given being from  $\frac{1}{10}$  to  $\frac{1}{2}$  grn., three or four times daily. Dose of digitoxin is  $\frac{1}{10}$  to  $\frac{1}{20}$  grn.

W. H. A. wishes to know the composition and uses of AIROL.

Airol is bismuth iodo-subgallate. It is a greenish-gray powder, a most excellent siccatif for wounds, ulcers, chancroids, etc. In contact with the secretions from the wound, iodine is slowly set free. In 10-per-cent. suspension in equal parts of glycerin and water it has been used in gonorrhea.

Dr. P. J. wishes to know why it is dangerous to put CALCIUM CARBIDE into water, and why acetylene gas is generated by it.

The first half of the question is answered by the second half, and vice-versa. It is dangerous to put calcium carbide into water because acetylene gas is thereby generated, and acetylene gas is a very inflammable gas. The chemical equation showing how acetylene gas is generated from calcium carbide and water is as follows:  $\text{CaC}_2 + \text{H}_2\text{O} = \text{CaO} + \text{C}_2\text{H}_2$ .



**Dr. J. V.** asks for the formula of FUL-

LER'S LOTION.

Fuller's lotion consists of:

Sodium Carbonate.....	6	dr.
Tinct. Opium.....	1	oz.
Glycerin.....	2	oz.
Water.....	9	oz.

The mixture is warmed before each application, hot cloths are saturated with it and applied. Recommended in *acute inflammatory rheumatism* as an application to the joints.

**Dr. B. D.**, Ohio, writes: "Within the last month I have seen several references to BACELLI'S MALARIA MIXTURE. Is it a nostrum, and, if not, will you kindly give me its formula?"

Bacelli's malaria mixture is not a nostrum. Its formula is as follows:

Quinine Sulphate	} of each.....	45	grn.
Tartaric Acid....			
Sodium Arsenate.....		$\frac{5}{6}$	grn.
Water.....		10	oz.

Dose. Tablespoonful 4 to 6 times a day.

**Dr. R. S.**, of California, writes: "What is, in your opinion, the best method of administering CREOSOTE?"

One of the best methods of administering creosote is in milk. By stirring the creosote, it becomes emulsified, and is thus prevented from exerting a caustic action on the mucous membrane of the alimentary canal. Another way is in cod-liver oil or some extract of malt. If it is desired to avoid its disagreeable odor and taste, it may be given mixed with cod-liver oil (1 min. of creosote to 10-15 min. in the oil) in capsules. It is not to be given in pills, nor in aqueous solution.

**Dr. J. P. H.** complains about the unpleasant taste of PARALDEHYDE, and asks whether we cannot suggest a palatable formula.

"Shoemaker's *Materia Medica and Therapeutics*" (fifth edition) gives the following formula, as originally suggested by Dr. R. G. Eccles:

Paraldehyde.....	2	dr.
Chloroform..	10	min.
Oil Cinnamon.....	2	min.
Exp. Oil Almond.....	2	dr.

Shake well and take undiluted.

Another formula from the same source is as follows:

Paraldehyde.....	$\frac{1}{2}$	oz.
Oil Wintergreen.....	10 to 20	min.
Powd. Acacia.....	2	dr.
Syrup Wild Cherry.....to make	4	oz.

Dose: Half to one tablespoonful in water every hour or two.

## Seasonable Prescriptions

### Coughs in General:

Codeine.....	4	grn.
Dil. Hydrocyanic Acid.....	15	drops
Ammonium Chloride.....	40	grn.
Syrup Wild Cherry.....to make	2	oz.
Teaspoonful every three or four hours.		

### Simple Cough:

Dionin.....	3	grn.	
Glycerin.....	} of each,	2	dr.
Syrup .....			
Solut. Potassium Citrate to make	3	oz.	
Two teaspoonfuls every three or four hours.			
—WALTERS.			

### Cough (WITH MUCH SORENESS OF CHEST):

Codeine.....	4	grn.
Dionin.....	4	grn.
Dil. Hydrocyanic Acid.....	1	dr.
Brandy.....	1	oz.
Guaiaicol.....	12	min.
Ext. Licorice.....	1	dr.
Syrup Tolu.....to make	3	oz.
Teaspoonful three or four times a day.		
—ROBINSON.		

### Cough of Pharyngeal Origin:

Codeine.....	5	grn.
Ext. Licorice.....	1	oz.
Powd. Althea.....	1	oz.
Powd. Tragacanth.....	} sufficient	
Powd. Acacia.....		

Divide into fifty troches. One troche every two or three hours, to be slowly dissolved in the mouth.

—ROBINSON.

### Acute Coryza:

Powd. Opium.....	4	grn.
Powd. Camphor.....	6	grn.
Ammonium Carbonate.....	15	grn.
Divide into six capsules. One every four hours.		
—Med. Age.		

### Coryza and Hay-fever:

Codeine.....	3	grn.
Atropine Sulphate.....	$\frac{1}{25}$	grn.
Citrated Caffeine.....	15	grn.
Salophen.....	75	grn.
Divide into fifteen capsules. One capsule four times a day.		
—Med. Age.		

### Coryza (WITH CONGESTION OF TURBINATES, ETC.):

Menthol.....	1	grn.
Sodium Bicarbonate.....	2	grn.
Magnesium Carbonate.....	3	grn.
Cocaine Hydrochlorate.....	4	grn.
Zinc Stearate.....	$1\frac{1}{2}$	dr.
Use as a snuff. — <i>Jour. des Praticiens.</i>		

### Acute Rhinitis (CORYZA):

Oil Thyme.....	5	min.
Menthol.....	5	grn.
Liquid Petrolatum.....	2	oz.
Spray nasal cavities freely.		
—Med. Summary.		

### Chronic Rhinitis and Pharyngitis:

Oil Cinnamon.....	20	drops.
Eucalyptol.....	3	dr.
Oil Wintergreen.....	30	drops.
Menthol.....	20	grn.
Liquid Petrolatum.....	3	oz.
Use with atomizer. —DUNLAP.		

**Fetid Bronchitis (GANGRENE AND ABSCESS OF THE LUNG):**

Guaiacol ..... 1½ dr.  
 Menthol ..... 5 dr.  
 Olive Oil ..... 7 oz.

Inject into the larynx 15 to 30 min. of this solution, once or twice a day. Give besides, internally:

Iodoform..... } of each, 1 grn.  
 Beechwood Creosote.. }  
 Croton Chloral..... 1½ grn.  
 Extract Licorice.... } sufficient to make 1 pill.  
 Powd. Licorice..... }

Three such pills a day.

—*Rev. de Thérap.*

**Cough in Bronchitis (WITH DIFFICULT EXPECTORATION):**

Ammonium Chloride..... 2 dr.  
 Dionin..... 4 grn.  
 Tartar Emetic..... 1 grn.  
 Fl. Ext. Licorice..... 6 dr.  
 Glycerin..... 4 dr.  
 Syrup Tolu..... to make 3 oz.

Teaspoonful every three or four hours.

Ammonium Chloride..... 2 dr.  
 Dionin..... 4 grn.  
 Comp. Syrup Squill..... 6 dr.  
 Ext. of Licorice..... 1 dr.  
 Syrup Tar..... to make 3 oz.

Teaspoonful every four hours.

Dionin..... 4 grn.  
 Ammonium Chloride..... 2 dr.  
 Powd. Ext. Licorice..... 1 dr.

Divide into twenty-four capsules. One capsule four times a day.

—ROBINSON.

**Bronchitis in Children:**

Codeine..... 3 grn.  
 Syrup Ipecac..... 1 dr.  
 Solut. Ammonium Acetate.... 4 dr.  
 Mucilage Acacia..... 1 oz.  
 Water..... 4 dr.

Half to one teaspoonful every two or three hours, for older children.

—*Gould's Cyclopedia.*

**Influenza:**

Antifebrin..... 1 dr.  
 Alcohol... (enough to dissolve).  
 Tinct. Gelsemium..... ½ dr.  
 Syrup Ginger..... to make 2 oz.

Teaspoonful every two or three hours.

—*Med. Summary.*

**Cough in Influenza:**

Codeine Sulphate..... ¼ grn.  
 Ext. Belladonna..... ⅙ grn.  
 Euquinine..... 2 grn.

For one pill. One pill every three hours.

—SMITH.

**Asthma:**

Tinct. Lobelia..... }  
 Sulphuric Ether..... } of each, 2 fl. dr.  
 Sol. Ammon. Acetate. }

Fifteen or twenty drops every half hour in water. Also give the following:

Camphor..... 1 grn.  
 Dover's Powder..... 12 grn.  
 Milk-Sugar..... 20 grn.

Make two powders and give one at night.

—ROSAHNSKY, *Med. Summary.*

**Rhinopharyngitis (IN CHILDREN):**

Resorcin..... 15 grn.  
 Oil Peppermint..... 2 drops  
 Sterilized Olive Oil..... 6 dr.

Inject 15 min. into each nostril night and morning, after having cleansed the mucous membrane with a spray of a solution of sodium chloride.

**Bronchopneumonia (IN EARLY STAGES):**

Spirit Nitrous Ether..... 2½ dr.  
 Sol. Ammonium Acetate, to make 4 oz.  
 Dessertspoonful in water every hour.

**For the Cough:**

Wine Ipecac..... } of each, 5 dr.  
 Potassium Citrate.... }  
 Paregoric..... 10 dr.  
 Syrup Licorice..... to make 4 oz.

Teaspoonful every two or three hours.

**As a more stimulating expectorant, later in the disease:**

Ammonium Carbonate..... 2 dr.  
 Tinct. Sanguinaria..... 2½ dr.  
 Brandy..... 1 oz.  
 Syrup Senega..... 5 dr.  
 Syrup Tolu..... to make 4 oz.

Teaspoonful every two or three hours.

—*Jour. Amer. Med. Assoc.*

**Influenza:**

Codeine Sulphate..... ¼ grn.  
 Phenacetin..... 5 grn.  
 Acetanilid..... 2 grn.

For one capsule. One four times a day.

**Dry Pharyngitis:**

Carbolic Acid..... 4 min.  
 Tinct. Aloes..... 8 min.  
 Tinct. Iodine..... 5 min.  
 Wine Opium..... 10 min.  
 Glycerin..... 6 dr.

Swab the throat.

**Bronchitis of Influenza:**

Morphine Sulphate..... ½ grn.  
 Syrup Squill..... 2 dr.  
 Syrup Lactucarium..... 4 dr.  
 Water..... 6 dr.

Teaspoonful every two, three, or four hours.

—*Wilson's Text-Book Applied Therapeutics.*

**Chronic Bronchitis (FETID):**

Thiocol..... 4 dr.  
 Codeine..... 6 grn.  
 Syrup Orange..... ½ oz.  
 Glycerin..... 2 dr.  
 Bitter Almond Water.. to make 3 oz.

Teaspoonful three or four times a day.

—ROBINSON.

**Vomiting in Whooping-cough:**

Menthol..... 1 grn.  
 Sugar..... 12 grn.

Divide into six powders. One powder every two hours.

—BAGINSKI, *Med. News.*

**Parotitis (MUMPS):**

Ichthyol..... } of each, 45 grn.  
 Lead Iodide..... }  
 Ammonium Chloride..... 30 grn.  
 Lard..... 1 oz.

Apply three times a day.

—*Jour. Amer. Med. Assoc.*

## Book Notices

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The thousands of physicians who were brought up on WOOD'S THERAPEUTICS will greet with delight the appearance of a new edition of this work, remodeled and in greater part rewritten. The last few editions, it must be confessed, were not keeping up with the progress of the times and were losing favor with the profession, being replaced in their hearts and shelves by the more modern and practical text-books of Hare, Potter, Bartholow, etc. The present edition will, we are sure, go far towards regaining the lost prestige, because it is practically a new book. Many of the antiquated and doubtful physiological experiments and discussions have been omitted and much new matter has been added. The book is fairly up-to-date, as will be seen from the fact that E. Merck's investigations with hydrogen dioxide as an antidote for hydrocyanic acid (which appeared in the March issue of the ARCHIVES, this year) and the Bier-Tuffier method of subarachnoid cocainization are duly mentioned. Nevertheless, many new remedies are either completely omitted or are treated of at insufficient length. The typographical arrangement of the book is quite an innovation, and will commend itself to the judgment of the readers. Three different types are used. The ordinary type for the general text, a small type for the less important discussions, and a heavier face for the "Summaries" of the physiological action of the most important drugs. The references have been transferred from the body of the text to the end of each chapter, and the text is thus much more pleasant to read. Altogether, the present edition is a great improvement over its predecessors, both intrinsically and typographically. Still, it contains many imperfections, which we shall only touch upon. Its most serious drawback is its classification, which we are frank to say we consider extremely faulty, unscientific and impractical. What sense, for instance, is there in considering carbolic acid, creosote, menthol and thymol among the antipyretics? Assuming even that those drugs have the power of reducing fever (a thing we are skeptical about with regards to menthol, for instance), who has ever used, or is likely to use, them for such a purpose? Isn't it, therefore, in the highest degree anomalous to find them treated of among the antipyretics instead of among the antiseptics? The chief indications of lemon juice or citric acid are given as scurvy, acute rheumatism, catarrhal jaundice and torpor of the liver; acetic acid is spoken of as indicated locally in dermatitis, sunburn, bruises and sprains, and as a useful drink in hematemesis. And where are those two acids spoken of? In the chapters on cardiac depressants! These are but two examples

of hundreds that could be given to illustrate the faultiness of the classification. We sincerely hope that in the next edition the author (or, rather authors, as H. C. Wood, Jr., was associated with his father in the preparation of this new edition) will change the classification to be more in accord with the practical demands of the physician. With that one change made, the book would again take its place as one of the foremost treatises on *scientific* therapeutics. Of the mechanical make-up of the book—paper, binding, etc.—nothing need be said, because it goes without saying that it is excellent in every respect. (Philadelphia: J. B. Lippincott Company. 1900.)

While we do not agree with all of Dr. Haig's deductions and conclusions, we believe that no more useful book has ever been published than his URIC ACID AS A FACTOR IN THE CAUSATION OF DISEASE. Like all pioneers in new fields of work are apt to be, Dr. Haig is somewhat too zealous in the advocacy of his ideas, and, as it appears to us, goes a little too far in his brief against uric acid as the guilty party in causing a number of diseases. But we repeat that we believe that no more useful work has ever been written: it has been instrumental, more than any other single book, in cutting off and restricting the amount of meat consumed by the Anglo-Saxon race. That an *excess* of meat will tend to produce a great number and variety of diseases will hardly be denied by any one who has investigated the subject. The author's services in the cause of humanity in bringing the subject prominently before the medical profession will always stand preëminent. The book is full of food for thought, and that it has a profound interest for the medical profession is seen from the fact that in eight years five editions have appeared. (Philadelphia: P. Blakiston's Son & Co., 1012 Walnut street. 846 pages. Cloth. Price, \$3.00.)

For many, many years the subject of sexual diseases—using the word sexual in its limited sense and not as synonymous with genito-urinary—such as impotence, sexual irritability, etc., has been practically tabooed by the better part of the medical profession. It was considered somewhat beneath the dignity of a reputable physician to write about and to investigate a field the paths to which were by common consent considered closed. That condition of affairs resulted in the establishment and the development of thousands upon thousands of "lost manhood" quacks and "guaranteed cure" charlatans. A change has taken place within the last few years. Works



on sexual matters are appearing quite frequently; but, unfortunately, we are constrained to say that many of these works, while wearing a pseudo-scientific garb, seem to have been written for the purpose of being able to tell a *histoire rejouissante* and, incidentally, by catering to the pruriency of the degenerate, of securing a large sale. It may be said with fairness that *SEXUAL DEBILITY IN MAN*, by Dr. F. R. Sturgis, is free from any such imputation. The book is a fair résumé of our present knowledge of the subject. Regarding masturbation and spermatorrhea, the author holds the view—which, by the way, is now almost universally accepted—that they are not necessarily precursors of insanity, locomotor ataxia and the thousand other diseases with which medical authors of former times tried and present quacks have been trying—successfully—to frighten the life out of the poor victims. Neither, he holds, is incompatible with perfect health. Regarding the therapy of the various forms of sexual debility, we also agree in the main with the author. His treatment is throughout conservative, rational and characterized by common sense. (New York City: E. B. Treat & Co., 241 and 243 West Twenty-third street. Price, \$3.)

Havelock Ellis, who is well known in his special field, has given us another book dealing with the sex problem. The title of the book is *STUDIES IN THE PSYCHOLOGY OF SEX*, and the subdivisions are: The Evolution of Modesty, the Phenomena of Sexual Periodicity, and Auto-Erotism. While the subject is rather a delicate one, it is handled by the author with much tact and is treated in a strictly scientific spirit. While the book is not strictly medical, and its value to the general practitioner may be questioned, it will prove of great interest to the alienist, to the psychiatrist and to those who make a study of the mooted and obscure points in psychology. The announcement that the book is sold to doctors and lawyers only is, in our opinion, ill-considered, as nothing is more liable to excite the fancy of the morbidly inclined than just such a declaration. And should a demand be created, one may rest assured that it would be gratified—in one way or another. (Philadelphia: The F. A. Davis Co. 1900.)

That the subject of refraction and of anomalies of the muscles of the eye is not as familiar to the average practitioner as it should be is a well known fact. A clear, concise text-book on the above topics is always welcome. Dr. F. B. Tiffany's *ANOMALIES OF REFRACTION AND OF THE MUSCLES OF THE EYE* can be commended to every practising physician, as it treats the subject in a clear and comprehensive manner. The illustrations are numerous and very good. The book also contains, by way of introduction, three short biographical sketches, with portraits, of

Prof. von Helmholtz, Prof. Donders and Prof. Landolt. This is the fourth revised edition, and it has been, as the author says, brought thoroughly up to date. (Kansas City, Mo.: Hudson-Kimberly Publishing Co. 307 pages. Cloth.)

*DISEASES OF THE EYE*, by Prof. Kent O. Foltz, forms No. 4 in the series of eclectic manuals. It is a quite satisfactory and up-to-date text-book on ophthalmology, and is written in plain, concise language, a fact which will make it very acceptable to students. The internal treatment, wherever such is indicated, is that of the Eclectic school. The 193 illustrations are excellent, as are the paper, printing and binding. (Cincinnati, O.: The Scudder Bros. Company, 1009 Plum street. Cloth. Price, \$2.50 net.)

Victor von Richter's text-book of *INORGANIC CHEMISTRY* is too well-known to need extended notice. The present fifth American edition has been translated from the tenth German edition by Edgar F. Smith, professor of chemistry in the University of Pennsylvania, who has revised the text carefully and introduced important changes. Recent facts concerning the general properties and measurements of gases, the lately discovered constituents of the atmosphere, the latest theories regarding solutions and electrolytic dissociation, etc., etc., have all been incorporated. It is to be understood that this is not a text-book for beginners, but to those desiring an advanced text-book on pure theoretical inorganic chemistry no better work can be recommended. (Philadelphia: P. Blakiston's Son & Co., 1012 Walnut street. Price, \$1.75 net.)

*INJURIES AND FISTULAS OF THE URETERS* are considered in a most thorough and comprehensive manner by Dr. W. Stoeckel in a monograph of 150 closely printed pages. Forty pages are devoted to the etiology, diagnosis, symptomatology, prognosis, and prophylaxis, while the treatment occupies nearly 70 pages—a proportion which we should like to see in other medical works. An exhaustive bibliography, extending over twelve pages and containing 347 references, concludes this work, which must prove very valuable to those engaged in the interesting field of renal surgery. (Leipzig: Verlag von Breitkopf & Hartel. 1900.)

John Uri Lloyd is as well known to the medical profession as he is to the pharmaceutical, and anything from his pen has a profound interest for us. His first novel, "Etidorhpa, the End of the Earth," stamped Prof. Lloyd as a fiction writer of more than ordinary power. His new novel, *STRINGTOWN ON THE PIKE*, which (as noted in this column in the May number) ran serially in *The Bookman*, has now appeared in book form. The novel gives us an insight into Kentucky life at the time of the close of the Civil War and abounds in many dramatic

situations. The vigor, freshness and originality of the book will strengthen the author's reputation as a novelist, and his future efforts in the domain of *belles-lettres* will be awaited with interest. It seems to us that the book would lend itself to dramatization very readily, and should an enterprising manager decide to have the novel dramatized, the piece would prove a strong drawing card. The illustrations are charming. (New York: Dodd, Mead & Co.)

GOLDEN RULES OF SKIN PRACTICE, by Dr. David Walsh, physician to the Western Skin Hospital, London, constitutes No. VIII in the "Golden Rule Series"—text-books of about 100 pages each, of vestpocket size. The matter is chiefly in the form of remembers and don'ts, and calls attention to the salient features of the specialty of which it treats. (Bristol, England: John Wright & Co. Price, cloth, 1s. each.)

Part V of the *LEHRBUCH DER HISTOLOGIE UND DER MIKROSCOPISCHEN ANATOMIE*, by Dr. Ladislaus Szymonowicz, has recently been published. It had been intended to complete the work in five parts, but the publishers state that as the scope has been considerably increased beyond that originally intended, it has been decided to issue in the near future an extra part, which will finish the work. The present part deals with the bones, muscular system, spinal cord, ganglia, the skin, and the hair, the instruction provided being most lucidly and entertainingly set forth. (Wurzburg: A. Stuber's Verlag. 1900. Price, each part, 3 marks.)

THE BIENNIAL REPORT OF THE DEPARTMENT OF HEALTH OF THE CITY OF CHICAGO contains much matter which should prove useful to sanitarians and public-health officers. Besides exhaustive reports of the work of the laboratory department and other statistical data, it contains an interesting paper by Dr. W. J. Class on "Epidemic Cerebro-spinal Meningitis." The paper is well worth a careful perusal.

THE TRANSACTIONS OF THE TEXAS STATE MEDICAL ASSOCIATION FOR 1900 form a well-printed and well-bound volume of 400 pages. The scientific papers are of the ordinary quality. Extremely interesting, though painful, is the report of Dr. James Hall Bell on the so-called New York Medical College of San Antonio. The Solons of the Texas legislature have granted a charter to this concern, which grants a diploma to everybody on the payment of \$50. Attendance is not necessary; the course is given by mail, when desired, and is completed in a few days. The Texas Medical Association sent a negro laborer to that college and he was granted a diploma after seventeen days. The tragedy of the business will be apparent when you learn the fact that this diploma entitles one to practice in the entire State of Texas without any other ex-

amination. All the professors, with the exception of one, the organizer, are graduates of this college, which at the time of the report had been in existence *five months*. All this reads like a joke, but it is a *fact*. How long will such things be possible in this great country of ours?

It is not so many years ago that reports of boards of health were received by the reviewer only to be put in the waste-basket—they were such dry and perfunctory affairs. A favorable change, however, has taken place. Many of the articles in the late reports would do honor to any of our medical journals or even systems of medicine. The ELEVENTH REPORT OF THE STATE BOARD OF HEALTH OF MAINE contains several such papers. Especially notable is the article on "Tuberculosis—Infection, Heredity, Prevention and Hygienic Treatment," by Dr. A. T. Young, secretary of the board. The paper takes up exactly 100 pages, and treats the subject ably and exhaustively. The article on "Sanatoriums," with numerous illustrations, is also very interesting. Other special papers are: "Experiments with Disinfectants," "Vaccination and Vaccine Lymph" and "Formaldehyde as a Milk Preservative."

But few periodical publications live to celebrate their fiftieth birthday. That Blakiston's PHYSICIAN'S VISITING LIST has attained this respectable age is proof presumptive that physicians have found it a useful and labor-saving device in the daily routine of their practice. Besides the usual blank pages for the various memoranda, the booklet contains a dose table, treatment for asphyxia and apnea, table of thermometric equivalents, obstetric tables, etc. It is bound in black leather and has a pocket and place for pencil.

### Publications Received

Some Neurological Notes. By Philip Meierowitz, M.D. Reprinted from the "Post-Graduate," May, 1900.

Annual Report of the Health Department of the City of Louisville, Ky., for the fiscal year ending August 31, 1900.

The Use of Citric Acid for the Relief of Ozena in Atrophic Rhinitis. By Lewis S. Somers, M.D. Reprinted from the "Therapeutic Gazette," March 15, 1900.

Ueber Periurethritis Gonorrhoeica, Kasuistische und Therapeutische Beiträge. Von Med. Dr. Oskar Werler, in Berlin.

Typhoid Fever. By Samuel E. Earp, M.S., M. D. Reprinted from the "Medical and Surgical Monitor," October 15, 1900.

Report of the Muhlenberg Hospital, Plainfield, N. J., for 1899-1900.

Report of the Surgeon-General, U. S. Navy, Chief of the Bureau of Medicine and Surgery. 1900.

Report of the Health Board of the City of Brussels for the year ending October 1, 1900.

Injuries of the Eyelids and Eyeballs. By L. Webster Fox, A.M., M.D. Reprinted from the "International Clinics," iii.

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